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Promoting Newborn Skin-to-Skin Contact to Increase Breastfeeding Initiation and Exclusivity in Cesarean Deliveries

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by

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Submitted in partial fulfillment of the requirements for the degree of

Doctor of Nursing Practice

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Approval of Project Defense

Eunide Joseph has successfully defended and made the necessary modifications to the text of this

Final Scholarly Project for the DNP this Spring, 2020 semester

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Dr. Mary Ellen Roberts — Date: 4/2/20

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Dedication

"Not by might nor by power, but by My Spirit, says the Lord Almighty" … Zechariah 4:6 I quote this biblical verse in dedication to my God's unfailing faithfulness throughout this academic journey. I truly believe that all my human efforts, intelligence or skills could not bring me to this finish line, it was only by His love, grace and mercy that I have made it this far!

To my beautiful daughter, Rebecca E. Joseph who was my biggest cheerleader throughout the program, I am very appreciative of your support and encouragements. I love you beyond measure! To my husband (Carlo Joseph), my son (Carlo "CJ" Joseph), and my son (Jeremie "JJ" Joseph) who have patiently supported me for the betterment of my career, I am appreciative of your understanding and I love you all!

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Abstract

Background: Literature has documented when a mother elects to breastfeed, she offers herself and her baby with many short and long-term wellness and health benefits. Therefore, maternal child healthcare providers should be prompted to scale up breastfeeding practices that promote lactation. Skin-to-skin contact (SSC) is underutilized, yet a cost-effective incentive to promote successful breastfeeding. Traditional postnatal assessments lead to the precipitous disconnect of the mother-baby dyad resulting in delayed SSC and breastfeeding initiation. In addition, practical barriers and delivery complications familiar to cesarean sections, postpones the start of breastfeeding in this birthing method which unfavorably impacts exclusivity. In such instances, paternal/newborn SSC in the absence of maternal/newborn SSC is a practical option that supports maternal breastfeeding initiation, proven to stimulate newborn pre-feeding behaviors. *Project Aim:* To promote early newborn maternal and/or paternal SSC through nursing education and clinical practice poster reminder to increase breastfeeding initiation and the at discharge exclusivity rate in uncomplicated cesarean deliveries. *Methods:* This is a quality improvement project of a quantitative methodology with a pre and post intervention design. Pre intervention chart review included 30 vaginal and 30 cesarean deliveries; 35 post intervention charts were reviewed to assess incidence of SSC, breastfeeding initiation and exclusivity at discharge. Intervention recipients were parents, newborns and staff nurses of the labor/delivery, postpartum and newborn nursery units in a community-based hospital. Primary project intervention reunited the newborn with its parents in post anesthesia care unit (PACU) for early SSC, nursing SSC education and a paternal newborn clinical practice poster reminder occurred before implementation of the primary project intervention. *Results:* In cesarean sections, PACU SSC significantly related to breastfeeding initiation and at discharge breastfeeding exclusivity. PACU

paternal newborn SSC significantly relates with maternal breastfeeding initiation. Nursing education brings greater understanding and awareness on SSC to impact higher incidence of maternal and/or paternal PACU SSC, breastfeeding initiation and at discharge breastfeeding exclusivity. Nurse satisfaction survey indicates 58% nurses found education extremely helpful, 54.8% nurses found the clinical practice poster reminder extremely helpful. *Conclusions:* Through nursing education and clinical practice reminders of paternal SSC, newborns of uncomplicated cesarean deliveries that experienced maternal and/or paternal SSC, were likely to initiate early breastfeeding after delivery and breastfeed exclusively at discharge.

Keywords: skin-to-skin contact, maternal and paternal skin-to-skin contact, breastfeeding benefits, skin-to-skin in cesarean delivery, cesarean and vaginal delivery, early skin-to-skin-contact, newborn breast latch

Promoting Newborn Skin-to-Skin Contact to Increase Breastfeeding Initiation and Exclusivity in Cesarean Deliveries

BACKGROUND

The Problem

Breastfeeding benefits have been well-documented in professional literature to be adventitious for parents and the newborn. However, despite this extensive research a considerable number of infants are not breastfed in line with breastfeeding recommendations of professional health organizations. The Baby Friendly Hospital Initiative (BFHI), recommends the newborn should be placed in skin-to-skin contact (SSC) immediately and uninterrupted with its mother after birth for at least one hour, and the mother supported to initiate breastfeeding as soon as possible (World Health Organization, 2018).

Unfortunately, the occurrence of maternal/newborn skin-to-skin (MNB-SSC) after delivery can significantly drop due to unpredictable intra and post-delivery medical complications, practical reasons and for several hours of frequent post-delivery observation, particularly in the cesarean delivery method, depriving the dyad from the opportunity to bond and initiate breastfeeding. Difficulties in breastfeeding initiation observed in cesarean sections (CS) over vaginal deliveries are often associated with immediate maternal/infant disconnect, decreased newborn receptivity, decreased suckling ability, and insufficient milk supply, all which are prognostic indicators to reduce breastfeeding initiation and duration (Watt et al., 2012).

The Centers for Disease Control and Prevention (CDC) reported the 2018 cesarean rate is 31.9% (CDC, 2019) but the World Health Organization (WHO) recommends the ideal cesarean delivery rate should be targeted at 10% to 15% (WHO, 2015). Comparison of the two rates

clearly indicates that the 31.9% cesarean rate exceeds the recommended WHO percentage rate which predisposes CS mothers and babies to a lower probability of successful breastfeeding. This difference in percentage should excite promotion of clinical interventions such as SSC to improve breastfeeding practices.

The benefits of paternal newborn skin-to-skin contact (PNB-SSC) are not always advertised as strongly as they are for mothers. Crenshaw (2014) documents the first hour after birth is the golden hour when SSC should be initiated and stresses that mother and baby should be left together in prolonged and uninterrupted SSC. However, the actualities of traditional birth routines often make this an unrealistic possibility, especially among CS. Shorey, He, and Morelius (2016) concludes for high risk unpredictable maternal medical complications in section births, a father's involvement in providing SSC should be promoted during the postnatal period and is a valuable alternative, especially during the unavailability of mothers due to special circumstances, including medical emergencies and CS.

The Agency for Healthcare Research and Quality (2015) indicates immediate postnatal interventions to promote and support breastfeeding increase the rates of initiation, duration, and exclusivity of breastfeeding. The U.S. Department of Health and Human Services (HHS, 2011) writes major deficits relevant to breastfeeding in hospital polices and clinical practices have been identified as low priority given to breastfeeding support, education, inappropriate routines and fragmented care. Since clinical personnel are accessible to assist with the breastfeeding process in the early postnatal period, inpatient hospital supported breastfeeding interventions is the best time to establish breastfeeding practices, as in SSC. Therefore, successful project implementation will reflect priority given to nursing education and PNB-SSC to promote breastfeeding initiation and exclusivity.

Project Clinical Practice Problem

The Healthy People (HP) 2010 indicator for breastfeeding in the early postpartum period is targeted at 75% (United States Breastfeeding Committee [USBC], (2019). Despite this recommendation, the at discharge breastfeeding exclusivity rate for the project setting is 30%, 4% formula only, and 66% for breast and formula fed newborns. Inclusive of the low breastfeeding rate, the existing practice of traditional postnatal interventions leads to the precipitous disconnect of the mother-infant dyad in uncomplicated CS to complete initial newborn assessment to assign the Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) scores, weight and height measurements, eye prophylaxis, injection of vitamin K and to give the first bath. This rapid postnatal disconnect deprives the newborn from the proven protective benefits of SSC and elicits reason to implement changes in existing practice gaps that negatively impact breastfeeding initiation and exclusivity.

Project Description

Project Purpose. Early SSC demonstrates a statistical association with higher rates of breastfeeding initiation, and exclusivity at discharge (Redshaw, Hennegan, and Kruske, 2014). The purpose of this Doctor of Nursing Practice (DNP) project is to educate nurses on SSC to promote early newborn maternal and/or paternal SSC to increase breastfeeding initiation and the at discharge exclusivity rate in uncomplicated cesarean deliveries. The project interventions is intended to build on nurses' existing knowledge, reinforce the benefits of SSC, educate on Widström's Nine Newborn Instinctive Stages of breastfeeding behaviors which leads to newborn breast latch and to bring a greater awareness to PNB-SSC as a practical and valuable option in the absence of MNB-SSC. The educational component can potentially change negative attitudes and personal beliefs which hinders the onset of clinical lactation. Successful project delivery can

offer manageable workflow changes and standardize into clinical policy maternal and/or paternal newborn PACU SSC for uncomplicated CS of which the mother desires to breastfeed.

The PICOT framework guided the development of the research question as follow: In newborns of uncomplicated cesarean deliveries, how effective is maternal and/or paternal skin-to-skin contact, compared to newborns with no skin-to-skin contact at increasing breastfeeding initiation and the at discharge exclusivity rate when performed early in the postnatal period?

Setting. The project occurred in a community-based teaching hospital of 391beds located in the Hudson Valley, NY region. The project interventions were implemented on the maternity units, excluding the neonatal intensive care unit (NICU). The hospital offers a range of services inclusive of maternal-child health, pediatrics, geriatrics, surgical, pain management, and mental illness. The patient population is culturally diverse, and the hospital staffs a variety of employees from different ethnic and religious backgrounds. In 2018 the medical facility produced 1,379 births and 1,285 births were registered from January 2019 to November 2019.

Recipients. Newborns and parents were beneficiaries of the primary intervention of PACU SSC (early postnatal SSC). Nursing staff of labor and delivery (L&D), postpartum (PP) and newborn (NBN) units were the recipients of the educational and PNB-SSC clinical practice poster reminder interventions.

Design. The institution for Quality and Safety Education for Nurses (QSEN) defines quality improvement (QI) as, using data to monitor the outcomes of care processes and using improvement methods to design and test changes to continuously improve the quality and safety of health care systems (Quality and Safety Education for Nurses, 2003).

This project is a six-month QI project of a quantitative methodology with a pre and post intervention design. The primary project intervention reunited the newborn with its parents in

PACU for early postnatal SSC after routine newborn assessments were completed in the NBN. To successfully implement the primary intervention of reuniting the newborn with its parents in PACU, nursing education on SSC and a PNB-SSC clinical practice poster reminder was included and occurred before the primary intervention. Pre and post intervention chart reviews were completed for project analyses. To assess nurses' knowledge of SSC, a pre and post education test was administered, and to evaluate nurses' satisfaction to the education and clinical practice poster component of the project, a two-question Likert type nursing satisfaction survey was offered for voluntary completion.

Project Significance to Nursing and Healthcare

Implementation of clinical practice guidelines is significant to the nursing profession because these guidelines offer the best practice interventions to provide quality care and to improve outcomes. The interventions of this project will assist nurses in promoting maternal newborn health and enhance nursing practice upon task completion. Secondly, since postpartum care policies and routine interventions influence breastfeeding success, this scholarly project can provoke revision of existing clinical practice guidelines to identify areas needing improvement. Third, Mithani, Premani, Kurji, and Rashid (2015) states father's support has been identified as one of the strongest predictors of exclusive and optimum breastfeeding success. The emphasis this project places on PNB-SSC will equip staff with the knowledge of the method and assist fathers through the challenging period of transitioning into fatherhood by performing newborn SSC.

Relative to healthcare, the ripple effects to in hospital breastfeeding initiation and exclusivity, supports long-term devotion to lactation which translates to significant economic benefits for parents, hospitals and global healthcare expenditure. Analysis completed by Bartick

and Reinhold (2010) concludes if 90% of U.S. families could comply with medical recommendations to breastfeed exclusively for six months, the U.S. would save $13 billion per year and prevent an excess of 911 deaths, nearly all of which would be in infants.

LITERATURE REVIEW

A comprehensive search of available literature was completed through various online libraries to access supporting texts on breastfeeding and SSC. Published literature was systematically searched using the Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane, ProQuest, PubMed, and National Center for Biotechnology Information (NCBI) databases. To expand on more applicable and complete evidence, grey literature was accessed through online sources. This strategic search method resulted in several published articles and research studies relevant to the project topic. Although main literature review was restricted to updated studies and articles, there were older and significant articles that were important to include in the review because of the foundational contribution this information contributed to the more contemporary literature.

Breastfeeding

Overview. Lactogenesis is the onset of milk secretion and includes all the changes in the mammary epithelium necessary to go from the undifferentiated mammary gland in early pregnancy to full lactation sometime after parturition (Neville, Morton, & Umemura, 2001). Medically recognized, breast milk is naturally produced and offers nutrition to the infant throughout the postpartum period and goes through three different phases known as colostrum, transitional milk and mature milk (Ballard & Morrow, 2013).

The American Academy of Pediatrics (AAP) recommends that exclusive breastfeeding (EBF) should occur for about six months, followed by continued breastfeeding as

complementary foods are introduced, with continuation of breastfeeding for one year or longer as mutually desired by mother and infant (AAP, 2012). However, the CDC reports four out of five (83.2%) of infants born in 2015 started out breastfeeding, which indicates that most mothers desire breastfeeding and attempt to do so. But nearly half (46.9%) were exclusively breastfeeding at three months and one third (35.9%) of infants were breastfeeding at 12 months (CDC, 2018).

Breastfeeding Benefits. Strong evidence demonstrates maternal newborn lactation is one of the best preventative ailment measures mothers can practice to protect the health of children. Literature supports dedication to breastfeeding is convenient and cost effective and when a mother elects to breastfeed, she offers herself and the infant with many short and long-term wellness and health benefits. Data contributes that the benefits of breast milk, lays the foundation to newborn health, brain development, endurance and nourishment.

The AAP supports the clear evidence that breastfeeding protects against a variety of diseases and conditions in the infant such as bacteremia, diarrhea, respiratory tract infection, necrotizing enterocolitis, otitis media, urinary tract infection, late-onset sepsis in preterm infants, type 1 and type 2 diabetes, lymphoma, leukemia, Hodgkin's disease, childhood overweight and obesity (AAP, 2020). In addition, maternal health benefits of breastfeeding are (1) decreased postpartum bleeding and more rapid uterine involution; (2) decreased menstrual blood loss and increased child spacing (lactational amenorrhea); (3) early return to pre-pregnancy weight; (4) decreased risk of breast and ovarian cancers (AAP, 2020). The health organization stresses breastfeeding has positive societal and environmental benefits as well. For example, zero manufactured energy to produce and creates no waste or air pollution. The AAP endorses the fact

that breastfeeding families experience a lesser incidence of illness which leads to reduced employment absenteeism (AAP, 2020).

C-section Rates and Impact on Breastfeeding. According to Martin, Hamilton, Osterman, Driscoll, and Drake (2018) in 2017, the cesarean delivery rate increased to 32% from 31.9% in 2016. Although the increase is minimal, women who deliver by CS are less likely to breastfeed because the mode of delivery increases the incidence of maternal-newborn separation. Hobbs, Mannion, McDonald, Brockway, and Tough (2016) investigated and found more women who delivered by planned c-section had no intention to breastfeed or did not initiate breastfeeding (7.4 % and 4.3 % respectively), when compared to women with vaginal births (3.4 % and 1.8 %, respectively) and emergency c-section (2.7 % and 2.5 %, respectively). The investigators conclude, anticipatory guidance around breastfeeding should be provided to women considering a planned CS and supportive care could be made available to lactating women with emergency CS, within the first 24 hours post birth and throughout the early postpartum period (Hobbs, Mannion, McDonald, Brockway, & Tough, 2016).

Chen et al. (2018) reported women in Hunan, China who had a cesarean delivery showed a lower rate of EBF and any breastfeeding than those who had a vaginal delivery ($p < .05$). In addition, cesarean delivery was related to using formula in the hospital and delayed breastfeeding initiation (Chen et al., 2018).

In a quality improvement study, Dudeja, Sikka, Jain, Suri, and Kumar (2018) aimed to improve the rates of first hour initiation of breastfeeding in neonates born through CS. Stable newborns ≥35 weeks of gestation born by CS under spinal anesthesia were enrolled. Observation of the median time of initiation of breast feeds was 50 minutes in babies born vaginally, while in cesarean sections it was 99 minutes. None of the eligible babies delivered by CS, had been put to

breast within the first hour (Dudeja et al., 2018). The team of researchers found the post-delivery intervention process took more than one hour resulting in delay in initiation of breastfeeding and implemented initiating breastfeeding when feasible on the labor room-operation table. Overwhelmingly, the rate of early initiation of breastfeeding increased from 0% (baseline) to 93% through the course of the study. Although the primary intervention to this DNP project is to reunite the newborn with its parents in PACU for early postnatal SSC, results of this review supports the interventions of this scholarly project.

Cost Savings of Breastfeeding. In addition to the environmental costs to produce baby formula and to dispose the waste, lack of breastfeeding brings unfavorable health conditions which increases healthcare expenditure to treat illnesses proven to be reduced with breastfeeding exclusivity. Walters, Phan, and Mathisen (2019) shares the costs of not breastfeeding should prompt policy makers to continuously invest in breastfeeding and nutrition interventions for children and their mothers to strengthen economic outcomes around the world. The authors extensively documented the cost of not breastfeeding in relation to (1) child and maternal morbidity and mortality; (2) health system and household formula cost; (3) economic cost of mortality and cognitive losses. The researchers found the total annual global economic losses of not breastfeeding are estimated to be between $257 billion and $341 billion dollars, or between 0.37% and 0.70% of global gross national income (Walters, Phan, & Mathisen, 2019).

The analysts included surveillance data for 130 countries and concluded 166 million avoidable cases of diarrhea and 9 million pneumonia in children under the age of two each year was attributed to not being breastfeed according to recommendations. In 125 countries the economic cost of premature child mortality and cognitive losses each year due to not breastfeeding according to recommendations, is $53.7 billion dollars. Relative to mother’s

morbidity and mortality, the investigators reported annually breastfeeding potentially could prevent 27, 069 future deaths of women from breast cancer, 13, 644 from ovarian cancer and prevent 58, 230 deaths of women from type II diabetes (Walters, Phan, & Mathisen, 2019).

Baby-Friendly Hospital Initiative

In unison, WHO and the United Nations Children's Fund (UNICEF) launched the BFHI in 1991 which is a global effort to assist and motivate facilities worldwide who provide maternal and newborn services to implement breastfeeding supported practices. Embedded in the BFHI are the Ten Steps to Successful Breastfeeding (TSSB) which serves as the framework to guide the BFHI in promoting breastfeeding measures. The TSSB is broken down in two categories; critical management procedures and key clinical practices intended to promote, protect, and support breastfeeding (WHO, 2018). The clinical practice guidelines have been extensively researched, confirming the BFHI program has the capability to meaningfully influence lactation success. Reviewing and understanding the BFHI is relevant because the research proven initiative guided the activities and interventions of this project.

Pérez-Escamilla, Martinez, and Segura-Pérez (2016) completed a systematic review of 58 studies supporting compliance to the Ten Steps (TS) of the BFHI and the impact on breastfeeding rates. The investigators conclude adherence to the steps has a positive impact on short-term, medium-term and long-term breastfeeding outcomes. The review generated results consistent with a dose-response relationship between the number of BFHI steps women were exposed to and the likelihood of improved breastfeeding results (Pérez-Escamilla, Martinez, & Segura-Pérez, 2016).

Baby-Friendly Designation. Hospitals and birthing centers with the Baby-Friendly (BF) designation are verified by a third-party known as Baby-Friendly USA (BFUSA) which holds

them accountable to the highest standards for mother/baby care practices related to infant feeding (BFUSA, 2012-2020). To be BF designated, birthing sites cannot distribute samples from formula manufacturers because this practice is proven to discourage families from providing only mother's milk to their new babies (BFUSA, 2012-2020).

Broadfoot, Britten, and Tappin (2005) completed a large observational study to examine BFHI on breastfeeding rates in Scotland. Thirty-three maternity units had BF status of a certificate of commitment or United Kingdom standard award. Study results proved babies who were born in a hospital with the United Kingdom BFHI standard award were 28% ($p<0.001$) more likely to be exclusively breastfed at seven days of postnatal age than those born in other maternity units after adjustment for mother's age, deprivation, hospital size, and year of birth. Noted from these results, BF status proves effective and justifies project interventions.

Despite the effectiveness of BFHI, hospitals still face challenges to fully accomplish the initiative between socioeconomic disparities. Patterson, Keuler, and Olson (2018) executed a large study to examine the relationships between population demographics and the BF designation on breastfeeding exclusivity rates (BFERs) in hospitals throughout the US, rates were obtained from 121 BF designated hospitals and from 1,608 hospitals without the designation. The experimenters discovered exclusivity rates were positively correlated with a bachelor's degree, income, and those who identified as White or Asian and negatively correlated with those without college attendance, individuals living below the poverty line, and those who identified as African American or Hispanic (Patterson, Keuler, & Olson, 2018). Ultimately, BF designation is associated with significantly higher BFERs independent of demographic variables and suggests support for hospitals to attain the BF hospital designation (Patterson, Keuler, &

Olson, 2018). This information is important to consider since the project setting services a large population of Hispanic childbearing families.

Skin-to-Skin Contact

Overview. SSC was originally termed Kangaroo Mother Care, first presented by two neonatologists Edgar Rey and Hector Martinez in 1979 in Bogotá, Colombia. The neonatologists developed the method as an alternative to inadequate and insufficient incubator care for preterm newborn infants who had overcome initial problems but required only nutrition to thrive (WHO, 2003). Also referred as Kangaroo care (KC), SSC is the practice where a baby is dried and laid directly on their mother's bare chest after birth, both covered in a warm blanket and left for at least an hour or until after the first feed (UNICEF, 2019). SSC have been largely investigated to show its significance for the newborn and the mother. Having the ability to control newborn extra-uterine stability, the method is most commonly known to offer newborn thermoregulation to prevent hypothermia, blood glucose regulation, decrease infant crying time, promotes neonatal bonding, adds to cardiorespiratory stability, and encourages early newborn latch for the first feeding (Gouchon et al., 2010; Hung & Berg, 2011; Moore et al., 2012; Thukral et al., 2012).

Contraindications to SSC. Generally, SSC is safe but comes with few contraindications. Therefore, anytime SSC is offered, safety must be taken into consideration. The AAP (2016) documents a newborn requiring positive-pressure resuscitation should be continuously monitored, and SSC should be postponed until the infant is stabilized; newborns with low APGAR scores (less than 7 at 5 minutes) or medical complications from birth, may require careful observation and monitoring during SSC and in some cases delay SSC. The AAP specifies main concerns regarding immediate postnatal SSC are falls and sudden unexpected postnatal

collapse (SUPC), which includes any condition resulting in temporary or permanent cessation of breathing or cardiorespiratory failure (AAP, 2016).

Incremental Timing of SSC. Moore, Bergman, Anderson and Medley (2016) explains immediate and very early SSC means within 10 minutes of birth, while early SSC means between 10 minutes and 24 hours after birth. Dekker (2017) on the other hand, describes research studies defines three types of SSC care for healthy term infants (1) birth or immediate starts during the first minute after birth; (2) very early begins 30-40 minutes post-birth; (3) early is any SSC that takes place during the first 24 hours. WHO does not define an incremental timing to SSC, but step four of the BFHI recommends facilitating immediate and uninterrupted SSC and mothers should be supported to initiate breastfeeding as soon as possible after birth (WHO, 2018). Having a defined understanding to the incremental timing of SSC, early SSC versus immediate was selected for the primary project intervention of reuniting the CS delivered newborn with its parents in PACU. Nurse staffing constraints and post-delivery workflow of the project setting would not allow for immediate newborn SSC.

Through a nurse-piloted hospital based prospective cohort study Bramson et al. (2010) explored the benefits of early SSC through the first three hours after birth on EBF while hospitalized. The nurse researchers collected data in 19 hospitals on 21,842 mothers who delivered a singleton infant born at 37- 40 weeks gestation. Segmented times of mother/infant SSC was evaluated at 1-5 minutes, 16-30 minutes, and 31-59 minutes. Data analysis compared to mothers with no early SSC, validated EBF was higher in mothers who experienced early SSC. This was a dose-response relationship between early SSC and breastfeeding exclusivity (Bramson et al., 2010).

Moore, Bergman, Anderson, and Medley (2016) selected several randomized controlled trials and compared immediate or early SSC with usual hospital care. The sample included 38 trials with 3472 women and healthy full-term infants delivered vaginally or by CS. SSC experienced mothers were more likely to exclusively breast feed from hospital discharge to one-month post birth and from six weeks to six months post birth. Appraisal of this trial and that of Bramson et al. (2010) is relevant and supports this project's purpose to promote early SSC for breastfeeding initiation and exclusivity.

SSC Benefits to the Newborn. Huang, Huang, Lin, and Wu (2006) noted that increased morbidity and mortality was associated with neonates admitted with body temperatures below 36 degrees Celsius. Therefore, an experimental design in a randomized control trial was used to compare the effectiveness of using early KC for extra-uterine temperature adaptation in comparison to using radiant warmers. Seventy-eight cesarean delivered newborns with hypothermic complications were included in the intervention. The KC group received MNB-SSC in the post-operative room, while infants in the control group received routine care under radiant warmers. Analyses found the initial mean temperature of the KC group was slightly higher than that of the control group (36.29 degrees C vs. 36.22 degrees C, $p = .044$). Following four hours, 97.43% of KC group infants had reached normal body temperatures, compared with 82.05% in the radiant warmer group. This investigation proves positive effects of KC for extra-uterine temperature adaptation in hypothermic infants and recommends KC could be incorporated in standard care to improve neonatal hypothermia.

Takahashi and Tamakoshi (2018) conducted an observational study, looking at the impact of SSC duration on blood glucose levels at two hours after birth in healthy full-term infants. The analysts included 66 uncomplicated vaginally born infants. Within five minutes of delivery, all

newborns were held in SSC and blood glucose levels at two hours of age were recorded. The mean duration of SSC was 59.6 ± 13.6 minutes and the infant blood glucose level was 53.1 ± 9.5 (range: 30.0-80.0 mg/dL). Based on the data, early and longer SSC was associated with higher blood glucose level at two hours of age in healthy full-term infants.

Chiruvolu et al. (2017) used a retrospective pre and post intervention study methodology to evaluate the effects of prolonged SSC 12 to 24 hours postnatal during blood glucose monitoring in late preterm and term infants at risk for neonatal hypoglycemia. Late preterm and term infants at risk for hypoglycemia were compared prior to SSC intervention. Statistical conclusion found that neonatal intensive care admissions significantly decreased from 8.1% pre-SSC period to 3.5% post-SSC period ($P = 0.018$). Infants in the NBN who were receiving intravenous dextrose bolus dropped significantly from 5.9% to 2.1% ($P = 0.02$). Although the investigators reported a weak statistical significance ($P = 0.074$), infants who were EBF at discharge increased from 36.4% to 45.7%. Results of the trial implies SSC was associated with a significant decrease in newborn hypoglycemia admissions to the NICU and concludes the intervention was safe and feasible with no adverse events.

SSC Benefits for the Mother. Mothers often become reserved to disclose postnatal unhappiness, leading to the missed diagnosis of postpartum depression (PPD). O'Hara and McCabe (2013) concludes an estimated 13% to 19% of postpartum mothers experience depression in the first six months after delivery. However, for many women SSC can reduce the chances of PPD because evidence is on the rise to demonstrate mothers who practice SSC for several hours per day in the first weeks of delivery had fewer depressive symptoms (O'Hara & McCabe, 2013).

Badr and Zauszniewski (2017) accomplished a literature review to collect evidence linked to the effects of SSC with PPD in relation to the release of oxytocin. The reviewers found SSC plays an important role in decreasing the risk for PPD through the triggered release of oxytocin which is hypothesized to minimize the risk for depressive symptoms as well as decrease maternal stress. Therefore, SSC can be used as a non-pharmacological intervention to prevent or decrease the risk of PPD (Badr & Zauszniewski, 2017). UNICEF (2019) adds postnatal SSC calms and relaxes the mother and baby, stimulates the release of maternal hormones to support lactation and mothering.

SSC Benefits for the Father. When maternal SSC becomes compromised due to CS delivery complications or practical reasons imposed to secure patient safety, the neonate becomes deprived of SSC and its benefits. PNB-SSC as an alternative is proven to be beneficial to the baby and enables breast-seeking behaviors in preparation to reunite with its mother.

An integrative review accomplished by Shorey, He, and Morelius (2016) found that father-infant SSC had positive impacts on infants' outcomes, including temperature, pain, bio-physiological markers and behavioral response. For the father, SSC leads to positive paternal outcomes including role attainment, better interaction behavior, and reduced stress and anxiety. The review indicates the application of paternal SSC into practice should be promoted in the postnatal period especially when mothers are unavailable due to special circumstances, including medical emergencies and CS (Shorey, He, & Morelius, 2016).

Erlandsson, Dsilna, Fagerberg, and Christensson (2007) compared the effects of SSC on crying and pre-feeding behavior in healthy, full-term infants born by elective CS and cared for with PNB-SSC versus conventional care in a cot in the first two hours after birth. Twenty-nine father-infant pairs were randomized to be in PNB-SSC or next to the father in a cot. Paternal

SSC had a positive impact on the infants' crying behavior resulting in SSC experienced newborns crying less than in the cot group ($p < 0.001$). Rooting activity was seen more frequent in the cot group than in the SSC group ($p < 0.01$), as were sucking activities ($p \leq 0.001$). Study outcome suggest fathers can facilitate the development of the infant's pre-feeding behavior and should be regarded as the primary caregiver for the infant during the after-birth separation of mother and baby (Erlandsson, Dsilna, Fagerberg, & Christensson, 2007).

SSC in Cesarean Section. Guala et al. (2017) conducted a cohort study in a BF hospital to examine SSC between mothers and fathers in the operating room (OR) after a cesarean delivery and compared the two variables to see the impact on breastfeeding duration. Women (N=252) of CS delivery were followed over six months. Participants were divided into three groups: SSC with the mother (57.5%), SSC with the father (17.5%), and no SSC (25%). There was a statistical association ($p < 0.0001$) between SSC with the mother and EBF rates on discharge. This same association was maintained and proved to be statistically significant at three and six months. In addition, the analysts examined the rates of any newborn breastfeeding between the modes of delivery at hospital discharge and found the CS group was (93.2%) and the vaginal (99.4%).

Analysis of SSC with the father after CS did not positively affect breastfeeding rates; however, the research investigators recommend if the mother is unwilling or unable to offer SSC, the paternal approach to the method should be promoted in order to give fathers the bonding opportunity and to colonize the newborn with familial bacteria (Guala et al., 2017).

Newborn Colonization Through SSC. Dominguez-Bello et al. (2010) completed research aimed at obtaining a community-wide perspective on the influence of delivery mode and body habitat on the neonate's first microbiota. The investigators found that infants born by

way of CS do not acquire maternal vaginal microbes; therefore, SSC when performed after delivery supports microbial colonization of the newborn with maternal skin microbiota (Dominguez-Bello et al., 2010).

Widström's Nine Newborn Instinctive Stages

Sustained SSC in the first and second hours after birth is proven to be impactful on breastfeeding initiation because the method allows the newborn to experience the nine innate behavioral stages in sequential order. Widström et al. (2011) discovered through a video protocol, if the infant is given the opportunity, he/she will go through the nine innate behavioral phases as follow (1) birth cry; (2) relaxation; (3) awakening; (4) activity; (5) crawling; (6) resting; (7) familiarization; (8) suckling; (9) sleeping (Appendix A). Widström et al. (2011) affirms that accomplishment of these steps while placed in SSC, results in early optimal self-regulation of the newborn.

Literature cited by Moore, Anderson, Bergman, and Dowswell (2012) shows the newborn can localize the nipple by smell and has a heightened response to odor cues in the first few hours after birth. This postnatal period predisposes the mother and infant to develop a synchronous and reciprocal interaction pattern, provided both are together and in intimate contact. Infants who are allowed uninterrupted SSC immediately after birth and who self-attach to the mother's nipple may continue to nurse more effectively (Moore, Anderson, Bergman, & Dowswell, 2012). UNICEF (2012) published a captivating video illustrating a newborn after birth crawling towards the mother's breast and latched to feed. UNICEF's video demonstrates the accuracy of Widström's Nine Newborn Instinctive Stages that leads to breastfeeding and validates the efficacy of postnatal SSC relative to breastfeeding initiation.

THEORETICAL FRAMEWORK

Kurt Lewin's Change Theory

The processes of this project were guided by the Kurt Lewin's Change Theory. Kurt Lewin has theorized a three-stage model of change to pinpoint and assess the factors and forces that impact a situation. The change theory drives change using a three-step process identified as unfreeze, change and refreezing (Lewin, 1951, p. 228). Within the change theory are three key concepts: driving forces, restraining forces and equilibrium.

Stage 1 – Unfreeze. According to the theorist, the initial step in the change process is to unfreeze the existing status quo practice or situation, this status quo is the equilibrium state (Lewin, 1951). Lewin included three sub-methods in the unfreeze stage as, forces that drive force away from the status quo should be promoted; forces that restrain moving away from the status quo should reduce; identification of approaches that combine the previously mentioned methods such as building trust and motivation (Lewin, 1951).

Pertinent to this phase, the scholarly project manager began to identify impactful stakeholders to push the project forward and established lines of communication. Meeting with the Maternal Child Health director from the very beginning and taking into consideration her clinical goals for the unit and building on it, was beneficial. Touching base with the unit manager at clinical site visits was necessary since she was the bridge connecting the director and nurses to project processes. Specific to the educational component of the project, communicating with the nurse educator was also important, she was instrumental in providing basic training to where specific data within the electronic medical records (EMR) system could be located. From day one on the units, project discussion with lactation consultants began because these specialists would be influential in promoting project activities.

To elicit trust, this project implementor displayed professionalism and knowledge of clinical specialty content. Being aware that nurses are stakeholders, a polite and friendly approach was maintained and queries to the project implementor's presence on the units were answered. Lack of knowledge can lead to project resistance so, as the needs assessment phase progressed, information was shared with staff and pre intervention data collection analyses were relayed to validate project significance.

Stage 2 – Change. The second stage of the theory includes the process of change or move, often targeting behaviors and thoughts. Shirey (2013) explains the second stage to this theory is frequently the most difficult to overcome since there could be a level of doubt and fear associated with the change process. Lewin understood that change isn't an event, rather a process of many steps, he incorporated three activities in this stage (1) influencing people on the negative aspect of the existing status quo practice or situation; (2) collaborating with others to discover actions that can promote the anticipated change; (3) establishing good communication and connection with influential leaders (Lewin, 1951).

Activities in this stage overlapped that of stage one. In addition, implementation of project interventions occurred in this change phase. Mapping out nurses who support breastfeeding practices and utilizing them as champions for project implementation was essential. The project author aknowledge nurse feedback would be significant for project application therefore, eliciting ideas and inputs from staff was necessary.

Stage 3 – Refreezing. Shirey (2013) concludes reaching this last stage of the theory should generate an equilibrium state that becomes the new norm or standard of practice. The refreezing stage was added to the change theory to assure change sustainability overtime; consequently, from the enduring change, a balance in both driving and restraining forces will

occur (Lewin, 1951). Attributable to current workflow and nurse shortage, reuniting the newborn with its mother/father in PACU for early SSC was a better practical option for the department. So, subsequent to implementation of project interventions, this refreezing stage was appropriate to relay results and to offer project recommendations and sustainability.

METHODOLOGY

Approval Process

The project approval process began in the very early developmental phase by way of introductory meetings with the Maternal Child Health Director, Director of Nursing Education and her secretary, the departmental Nurse Manager and the Nurse Educator. The project proposal was submitted to Seton Hall University's Institutional Review Board (IRB) requesting for pre-IRB review. Since the project was deemed to be a QI project with an educational component, full IRB review was waived. A meeting with the maternity department stakeholders was secured, which lead to project approval. Verification of the project implementor's advance practice credentials and licensure was completed by the Director of Nursing Education who also issued approval for Nursing Informatics to establish EMR access. A username and password were issued to obtain information relative to project needs.

This author complied with the Health Insurance Portability and Accountability Act (HIPAA) which protects the privacy of patients' health information (Health and Human Services Department, 2013). The project setting mandated completion of the HIPPA 2019 Mandatory Annual Education for employees which stressed HIPPA compliance and risk management education; this was completed by the project author. The data collection process assured patient specific information such as names, date of births, ethnicity, religion, medical record numbers were de-identified and electronic files stored in a password secured computer.

Project Risks

A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was completed to predict project drawbacks.

Maternal Perception and Reluctance to EBF. According to Mortazavi, Mousavi, Chaman, and Khosravi (2014) breastfeeding difficulties and quality of life could affect the continuation of EBF. Therefore, stressful mothers with poor quality of life or breastfeeding difficulties in the early postpartum should be identified and assisted. To remedy this barrier, patient specific and focused breastfeeding counseling should be given strict attention to support and improve breastfeeding practices.

Perceived Insufficient Milk. Evidence suggest that perceived insufficient milk (PIM) is one of the most familiar and dominant cause for low rates of breastfeeding. Cassar-Uhl (2018), explains PIM is present when a mother is producing enough milk for the baby, but believes she is not. The writer also emphasizes this belief often stems from mothers who inconsistently assign normal behaviors of the baby as hunger or dissatisfaction at the breast. Breastfeeding self-efficacy (BSE) is defined as a mother's confidence in her ability to breastfeed her new infant and has been positively associated with breastfeeding duration and exclusivity in various cultures and age groups (Otsuka et al., 2013). Recognizing that BSE is associated with PIM, staff reminders to acknowledge and provide positive reinforcement when maternal breastfeeding practices were successfully accomplished, was essential.

Nurses' Knowledge and Competency of Breastfeeding. Nurses' knowledge, attitudes, beliefs, competency and personal experiences towards breastfeeding are indicators to predict successful in hospital breastfeeding exclusivity. Radzyminski and Callister (2015) endorse the concept that nurses need support and continuing education to identify personal bias and

knowledge deficits which delay breastfeeding initiation. To support nurse knowledge and target negative attitudes towards lactation, this project offers breastfeeding education and strongly recommends consistent annual clinical breastfeeding core competency. Successful completion of this project will reinforce an evidence-base (EB) breastfeeding promotion method into nurses' standard delivery of maternal care.

Resistance to Paternal SSC. Resistance to PNB-SSC may stem from staff's wrongful view to the awkwardness of the intervention for fathers and the belief that the method should be reserved to the mother or known to be frequently used in the NICU. This project implementer incorporated information on PNB-SSC in the nursing education component of the project to change this mindset and emphasized the research supported benefits of PNB-SSC when MNB-SSC becomes unavailable.

Project Benefits

While the BF designation is at a higher level of practice than hospitals who engage in selective BF interventions, both practice approaches offer maternal and newborn health benefits and with each BF intervention instituted, breastfeeding rates are likely to increase. Hospitals that continuously strive to make steps towards the BF label, demonstrates commitment to breastfeeding promotion and credibility to maternal/child health services. Standardizing early maternal and/or paternal PACU SSC in uncomplicated CS deliveries will benefit the hospital by validating continuous efforts to adhere to WHO's BFHI recommendations.

As a quality of care improvement incentive, this project exemplifies the benefits of implementing EB therapy for the newborn, with added maternal and paternal benefits. Successful project delivery will reinforce an EB method that (1) improves bonding through SSC; (2) promote newborn thermoregulation; (3) decreases the incidence of newborn hypoglycemia; (4)

improve early postnatal breastfeeding initiation in CS deliveries which will produce a domino effect that increases the at discharge breastfeeding exclusivity rate.

Project Timeline

Excluding pre project proposal activities which began January 2019, the timeframe for project execution to completion was six-months (Appendix B). Beginning August 2019 through October 2109, unit-based needs assessment, surveillance of current breastfeeding practices, interviewing nurses for identifiable practice gaps, assessing nurse attitudes towards breastfeeding and SSC, observation of scheduled cesareans sections was accomplished. October 2019 project proposal submitted to IRB and the project setting; November 2019 project approval obtained. Project interventions were implemented November through December 2019, from January to February 2020 project appraisal and post intervention analyses occurred.

Project Budget

Project expenditure was calculated to incorporate free resources that enabled project completion. The nurses who participated were not reimbursed since employment is secured at the hospital. SSC is a cost-effective method in current practice so, there was no added expense to implement the method or for parenteral participation. There was no cost associated with presenting the information to staff as this was accomplished on the project author's time at staff meetings and during project site visits. Electronic mail to communicate the project information and progress to administration and stakeholders was convenient and saved time.

Technical equipment for projections was provided by the hospital and the university, so no cost for software or equipment was incurred. The data collection tool, all pre and post implementation materials, the clinical practice poster reminder was designed by the project author. A technical assistance fee was incurred for formatting of project materials and

PowerPoint presentation. The estimated printing cost for all material is $120.00. For professional and accurate data interpretation and analyses, a statistician was consulted.

Inclusion and Exclusion Criteria

Inclusion criteria. SSC intervention recipient were (a) healthy expectant couples ≥18 years (constituting one female gender and one male gender); (b) uncomplicated vaginal (for pre intervention only) and caesarean deliveries; (c) gestational ages – late preterm, early term, term, late term; (d) healthy newborns; (e) feeding plan to exclusively breastfeed and/or breastfeeding with formula supplementation; (f) parental verbal consent for PACU (early) SSC.

Exclusion criteria. SSC intervention exclusions were (a) twin pregnancies or more; (b) newborn APGAR < 7 at 5 minutes; (c) unstable newborns, transferred to the NICU; (d) smokers; (e) paternal mental health history; (f) vaginal deliveries (excluded in the post intervention data collection but reviewed and included in needs assessment data collection).

Nursing Staff Education Inclusion and Exclusion Criteria. The L&D unit is staffed with 23 nurses and the PP unit with 22 nurses; PP nurses work interchangeably to staff the NBN. Nurses were eligible to participate in the intervention if trained to work in L&D, PP and/or NBN units. Float nurses and NICU nurses were excluded.

Project Phases

Phase I – Needs Assessment. To identify areas of focus and to generate topic selection, a departmental needs assessment of existing practices relative to breastfeeding was completed on each shift for the PP, NBN, L&D units. This project phase was valuable to observe workflow, pinpoint existing practice gaps and to stress pushing SSC in cesarean deliveries to promote breastfeeding. The results of the needs assessment validated project interventions. In addition, observation of five scheduled cesarean deliveries from pre-surgical prep to PACU transfer was

necessary to assess maternal and paternal newborn interaction in the immediate and early postnatal period. Appraisal of existing breastfeeding and SSC policies and procedures; interaction with parents and nurses regarding breastfeeding perception and knowledge was useful to predict project acceptance. A data collection tool (Appendix C) was designed to capture chart review information, the tool was reviewed by the units' nurse manager prior to use.

Observation of Cesarean Sections. As recommended by the BFHI, newborns without complications should be kept in immediate and uninterrupted maternal SSC to breastfeed. Assessment of the five scheduled sections lead this project author to conclude the biggest barrier to newborn SSC after CS is the workflow within the OR. Immediately after the cesarean delivery, the baby is quickly shown at a distance to the parents then taken to the radiant warmer for routine post-delivery assessment. Once the second APGAR score is assigned, the neonatologist exits the OR and the newborn nurse continues routine assessments such as vital signs, measurements and foot printing. Several minutes later, the baby is placed in a hat, swaddled in a blanket and taken to the father to hold, as surgical repair continues. When the baby nurse is ready, the stable newborn is taken from its father and transferred to the NBN accompanied by his/her father. In one delivery, brief check-to-check contact was observed, SSC was not offered to either parent in any of the cases.

The average time the newborn spends in the OR prior to transfer to the nursery was 40 minutes and the average maternal recovery time in PACU is two hours. After the newborn assessment and first bath was completed, the infant was never returned to its parents in PACU for bonding, SSC or for the initial breastfeeding, even in cases where the mother favored lactation. Despite the recommendations of the BFHI for SSC, implementation of immediate SSC in the OR was not a practical option for the hospital as per the Maternal Child Health department

leadership, citing nursing staff shortage and the complex inter-unit workflow. As per the unit manager, standardizing early SSC in PACU after neonatal assessment in the NBN over immediate SSC in the OR, was a better fit for the department because of the sequence of postnatal nursing tasks.

Phase II – Stakeholder Support. Stakeholder connection occurred early with nursing leadership which included the Director of Nursing Education, the Maternal Child Health Director, Nurse Manager and Nurse Educator. Communicating with the nursing informatics Systems Support Analyst was essential for technical assistance. Nurses, patients, lactation consultants, and preceptor were important project stakeholders. As a teaching hospital, the facility served as an indirect stakeholder by affording the opportunity to advance academic goals through project completion.

Phase III – Implementation. To achieve the project purpose, the primary intervention was to reunite the newborn with its parents in PACU for early SSC. However, nursing education on SSC and a paternal newborn SSC clinical practice poster reminder was included in support of the primary intervention. A two-question survey was offered for completion to evaluate nurse satisfaction to the SSC education and clinical practice poster reminder.

Nurse SSC Education Intervention. Setting the stage for implementation of the primary intervention, nursing education followed by display of the PNB-SSC clinical practice poster reminder came first. Initially intended, staff education was to be conducted in group sessions and during staff meetings. However, due to the complexity of staffing, unpredictable deliveries, admissions and the nurses' workflow, clustered training was difficult to arrange. Nurse education was conducted over three weeks on weekdays, various shifts and weekends. The nurse educator reinforced nurses' participation in the education component and facilitated scheduling for

attendance. The goal of the educational component was to build on existing nurses' SSC knowledge but, the educational sessions were also useful to answer nurses' questions regarding the project purpose, phases, and pre-intervention needs assessment results.

Topics of discussion for staff education included, benefits, safe and correct technique of SSC for the cesarean delivered baby. Emphasis was placed on the advantages of PNB-SSC, correct father-baby positioning for SSC and the Widström's Nine Newborn Instinctive Stages (Appendix A) that the newborn experience with uninterrupted SSC. Time permitting, the short video from which UNICEF (2012) was displayed on a laptop to demonstrate the newborn breast crawl which leads to maternal breast latch. Leeds, Grenville and Lanark District Health Unit (2020) designed a S2S infographic showing in clock format the newborn's progression through Widström's Nine Newborn Instinctive Stages within the first postnatal hour; this was incorporated into the SSC education (Appendix D).

A pre-test was administered to assess nurse's current knowledge on SSC (Appendix E). Following the education session, the same test was administered as a post education knowledge assessment (Appendix E). To avoid lack of interest, questions were kept brief and capped at ten. Nurse anonymity was preserved by omitting identifying information from the tests and a locked drop box was placed on each unit's working station for nurses to drop the pre and post-tests.

PNB-SSC Clinical Practice Poster Reminder Intervention. Drawing attention to PNB-SSC was important because traditionally, SSC is reserved to the mother and newborn. However, as research discovers, PNB-SSC can contribute to similar benefits as MNB-SSC and sets the stage for the first maternal breastfeed by eliciting newborn pre-feeding behaviors. As a result, PNB-SSC was embedded into this project as a precursor intervention to the primary PACU SSC intervention.

In the needs assessment phase, clinical practice poster reminders on the units caught the attention of the project author as a standard method for nurses to be informed and reminded of clinical practice guidelines. Familiar to the fact that infographics serve as visual stimulation resulting in a higher probability that people will desire to read the content, the PNB-SSC clinical poster reminder (Appendix F) was designed to outline the benefits of the method when performed by the father. After revision and approval by the maternity department administration, the poster was affixed in nurse's locker rooms, unit workstations and staff lounges.

Primary Project Intervention – Reuniting the Newborn with Parents in PACU. Agudelo et al. (2016) documents the first two hours of a baby's life has been defined as the optimum time to begin human lactation; Widström et al. (2011) concludes MNB-SSC in the postnatal period improves initiation and long-term lactation. However, contrary to these recommendations, staff constraints and workflow within the OR of this project's setting was a barrier to implement immediate SSC after CS delivery and of the five sections observed, the babies were not reunited with their parents until the transfer of the mother to the PP unit.

Considering the project's setting challenges, to reunite the newborn with its mother and/or father in PACU for early SSC was a better practical choice for uncomplicated CS deliveries of which mothers feeding preference was breast or breast and bottle. Bringing together the newborn with its parents in PACU would allow for the existing standard of care in the NBN to continue such as, infant thermoregulation under the radiant warmer; completion of routine assessments; and in many cases, the first bath. Meanwhile, maternal post-operative stabilization would continue in PACU. Prior to rejoining the newborn with its mother and/or father, the NBN nurse confirms with L&D that the mother is post-surgically stable and parenteral verbal consent to MNB-SSC and/or PNB-SSC is obtained. The NBN nurse coordinates the infant's transfer to

PACU and documents in the EMR. Upon arrival of the baby to PACU, the L&D nurse assists the parents with SSC, breastfeeding initiation and documents in the EMR results of SSC and breastfeeding activity.

Inclusive in the PACU SSC intervention, practice guidelines were sketched to include newborn safety while in SSC. In addition to assisting with breastfeeding, the L&D nurse would monitor the parents and newborn at the minimum in 15-minute increments assuring the newborn is properly positioned to avoid falls and in a way that prevents an obstructed airway (AAP, 2016).

Post PACU SSC Intervention Chart Review. Four weeks following implementation, a second chart review for post intervention data collection in uncomplicated cesarean deliveries was completed for pre and post appraisal. Data was gathered on the incidence of breastfeeding initiation, maternal and paternal PACU SSC, and at discharge breastfeeding exclusivity status.

Two-Question Nursing Satisfaction Survey. For the purpose of evaluating the nurse education and clinical practice poster reminder interventions, nurses were asked to answer a two question Likert type survey (Appendix G).

Phase IV – Ongoing Implementation Process. Following implementation of the SSC education and clinical practice poster reminder interventions the primary intervention of PACU SSC and weekly project site visits occurred. These visits were beneficial to reinforce PACU SSC, checking for clinical practice poster positions and relocating the posters as needed for refreshed attention. In addition, “checking in” visits and attending staff meetings made it possible for this project implementor to review project activities with staff and to answer project related questions. A four-week wait period from the start of the primary intervention was necessary to obtain enough cases for post implementation analysis. However, during the weekly

site visits, discharge CS charts were reviewed as they became available for post intervention data collection.

Since the author's presence on the units was limited, it was essential to determine and connect with nurses on each shift that appear to be champions of breastfeeding. This approach helped in pushing project interventions forward in the absence of the project author. As part to the ongoing implementation process, the nurse manager was frequently briefed on project activities and progress, who in turn updated her colleagues. The nurse manager, nurse educator and lactation consultants facilitated the progression of reuniting the newborn with its parents for PACU SSC and reminded nurses to accurately and consistently document SSC and breastfeeding activity in the EMR.

Phase V – Evaluation Process and Project Results. Pre intervention analyses focused on the incidence of (1) postnatal SSC; (2) breastfeeding initiation; (3) breastfeeding exclusivity between both methods of delivery. Post intervention analyses included (1) evaluation of nurse knowledge through pre and post-test; (2) analysis of PACU (early) SSC and its impact on breastfeeding initiation and at discharge exclusivity; (3) assessment of paternal PACU SSC in relation to breastfeeding initiation in the absence of maternal SSC; (4) assessment of nurses' satisfaction to the SSC education and clinical practice poster reminder interventions.

Chart Review Data Collection. For the pre intervention chart review, archival and current medical charts of 60 patients (30 vaginal, 30 cesareans) were reviewed to generate historical comparison of the previously documented variables between both delivery methods. The post intervention data collection included 35 chart reviews and the same pre intervention outcome measures were appraised but for CS deliveries only. In addition, analysis specific to PNB-SSC and its impact on maternal breastfeeding initiation was added to the post intervention appraisal.

The following anonymous information was extracted from the charts and plugged into a Microsoft Excel spreadsheet for output analysis (1) maternal and newborn basic demographics; (2) neonate's gestational age; (3) delivery mode, needed for historical comparison of pre intervention analysis between vaginal and CS; (4) delivery date and time; (5) feeding preference; (6) L&D SSC; (7) SSC length of time; (8) if no or limited SSC, reason (9) L&D breastfeeding initiation; (10) if no breastfeeding in L&D, reason; (11) at discharge breastfeeding status; (12) if no breastfeeding at discharge, reason; (13) paternal support/involvement in L&D, to determine availability for SSC.

Project Results

Power Analysis. To determine a sufficient sample size, a G*Power analysis was completed. Statistical power (0.80) and statistical significance of α (0.05) were used (Faul, Erdfelder, Buchner, and Lang, 2009). Based on the G*Power analysis, a minimum sample size of 23 project participants was necessary to generate substantial project intervention results. The Statistical Package for the Social Sciences (SPSS) software was used to produce data outputs. The Chi-square test, paired t-test, Fisher's exact test and descriptive statistics produced specific results based on the variable and data analyzed.

Pre-intervention Analyses – Needs assessment. The Chi-squared test was used for this chart review to cross tabulate variables between delivery methods.

Postnatal SSC and Delivery Method. As shown in the bar graph below (Figure 1) for SSC in L&D among cesarean deliveries, 21 of 27 (77.8%) newborns did not experience SSC; 6 of 27 (22.2%) did experience SSC. In the vaginal method, 1 of 30 (3.3%) newborns did not experience SSC in L&D; 29 of 30 (96.7%) newborns did experience SSC in L&D. These results suggest the incidence of postnatal SSC significantly relates (p=0.00) to delivery method (highest in vaginal delivery).

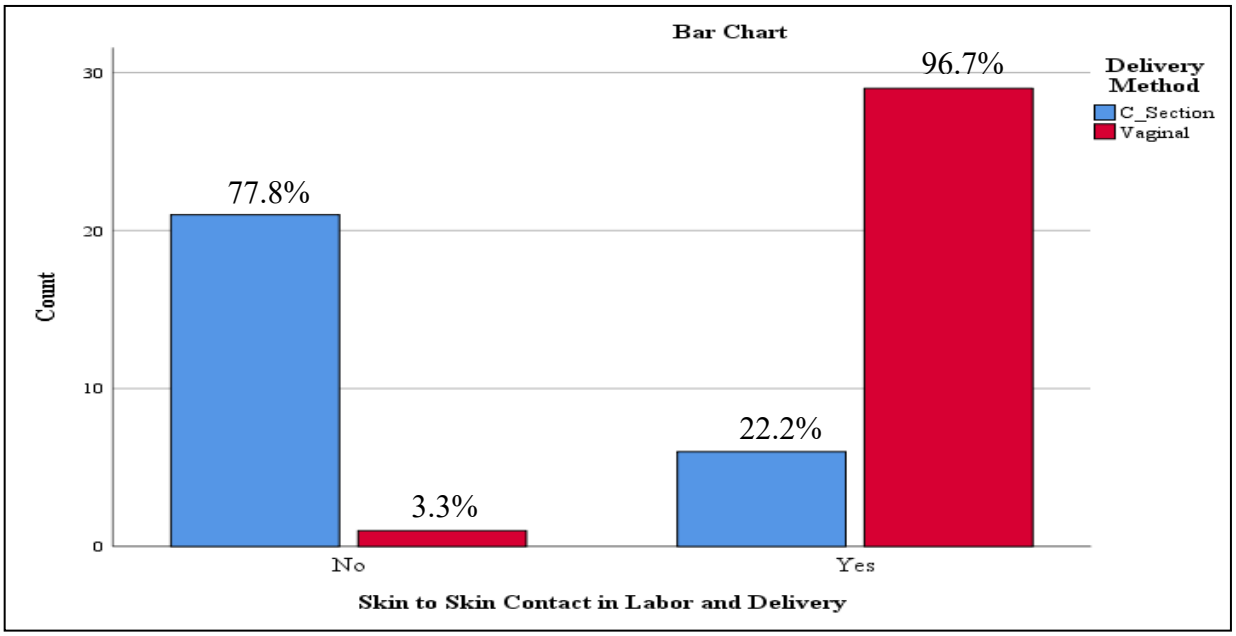

Figure 1. Pre intervention. SSC relative to delivery method.

Breastfeeding initiation in L&D and Delivery Method. Due to missing data only 53 charts generated results for this variable. The bar graph below (Figure 2) represents breastfeeding initiation relative to delivery method. In cesarean sections 22 of 25 (88%) mothers did not breastfeed in L&D; 3 of 25 (12%) mothers did breastfeed in L&D. For the vaginal method 4 of 28 (14.3%) mothers did not initiate breastfeeding; 24 of 28 (85.7%) mothers did breastfeed in

L&D. Results suggest breastfeeding in L&D is significantly related (p=0.00) to delivery method (highest in vaginal delivery).

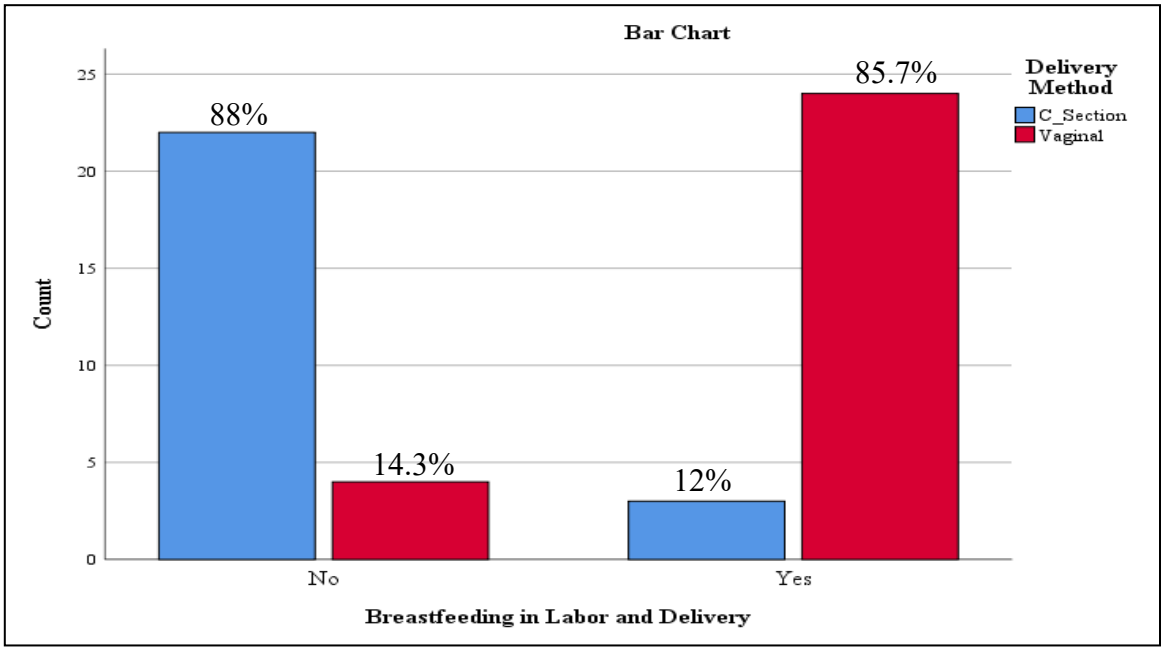

Figure 2. Pre intervention. Breastfeeding initiation in L&D related to delivery method.

At Discharge Exclusive Breastfeeding. The bar graph below (Figure 3) depicts exclusive breastfeeding relative to delivery method. For cesareans 25 of 30 (83.3%) mothers did not EBF at discharge; 5 of 30 (16.7%) mothers did EBF at discharge. The vaginal method 9 of 30 (30%) mothers did not EBF at discharge, while 21 of 30 (70%) mothers did EBF at discharge. Results imply that at discharge exclusive breastfeeding is statistically associated (p=0.00) with delivery method.

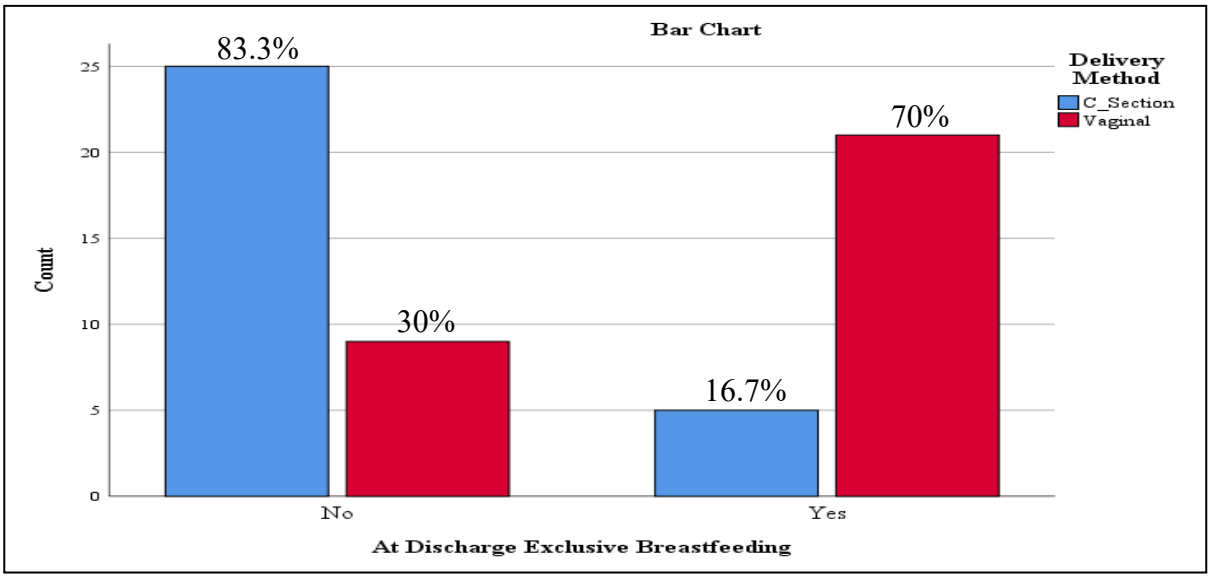

Figure 3. Pre intervention. Discharge exclusivity related to delivery method.

Nurses Pre and Post SSC Education Analysis. Pre and post nursing education knowledge were assessed through paired sample t-test used best to measure statistical difference between two time points. Prior to SSC education, 22.3% questions were answered correctly, and 77.7% questions were answered incorrectly (Appendix H). Nurse knowledge had a mean = 0.22, SD = 0.08. After the SSC education, 94.2% questions were answered correctly; 5.8% were answered incorrectly (Appendix I). Nurse knowledge increased to a mean = 0.94, SD = 0.60. These results suggest education significantly brings a bigger understanding (p = 0.00, 95% CI= -0.75, -0.68) on SSC to positively impact higher incidence of PACU SSC, breastfeeding initiation, and the at discharge breastfeeding exclusivity rate.

Post Intervention Analyses – Primary SSC Intervention. For PACU (early) SSC, the Fisher's exact test was performed. This was the second chart review of N=35 uncomplicated CS deliveries. However, eight cases were not valid for analysis due to missing data, yielding a sample size of 27.

PACU (Early) SSC Impact on Breastfeeding Initiation. The graph below (Figure 4) shows PACU SSC was experienced by 21 of 27 newborns; 100% of the 21 babies who experienced PACU SSC also initiated breastfeeding. Results indicated an equal percentage of cases (6 of the 27 analyzed) who had (n=3, 50%) or had not (n=3, 50%) experienced PACU SSC, did not initiate breastfeeding in PACU. Calculations imply PACU SSC in CS significantly relates (p=0.00) to breastfeeding initiation.

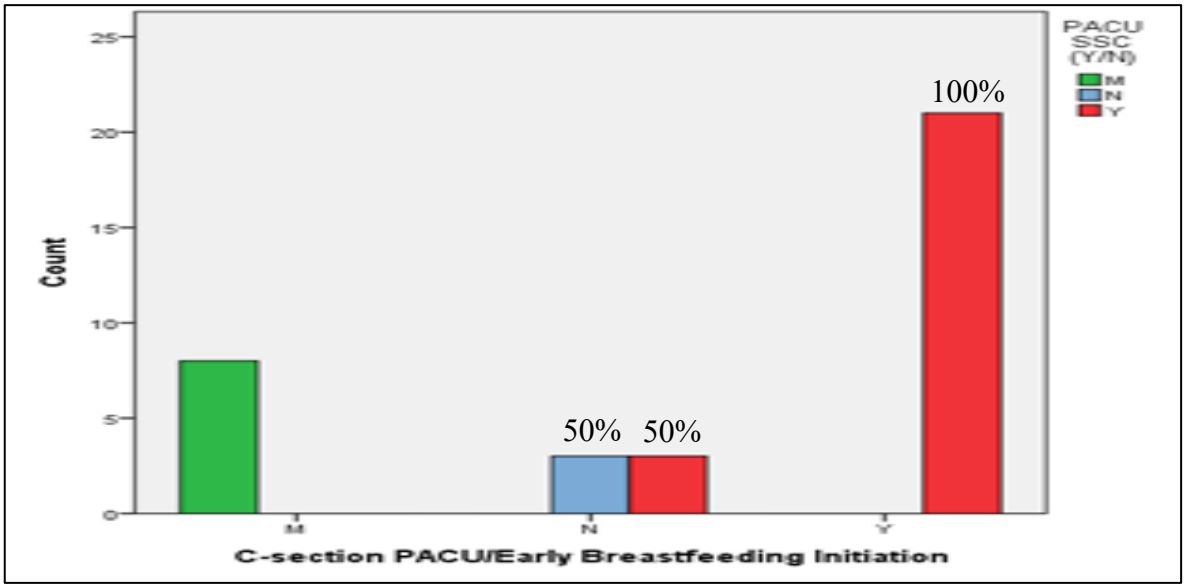

Figure 4. M=Missing (8). Post intervention PACU (early) SSC – breastfeeding initiation.

PACU (Early) SSC Impact on at Discharge Breastfeeding Exclusivity. Results to this analysis (Figure 5) are like the previous analysis of SSC impact on breastfeeding initiation. PACU SSC was experienced by 21 of 27 newborns; 100% of 21 babies that experienced SSC in PACU, were also exclusively breastfed at discharge. An equal percentage of cases (6 of the 27 analyzed) who had (n=3, 50%) or had not (n=3, 50%) experienced PACU SSC, were not exclusively breastfed at discharge. The results suggest a statistical significance (p=0.00) that PACU SSC in CS relates to at discharge exclusivity.

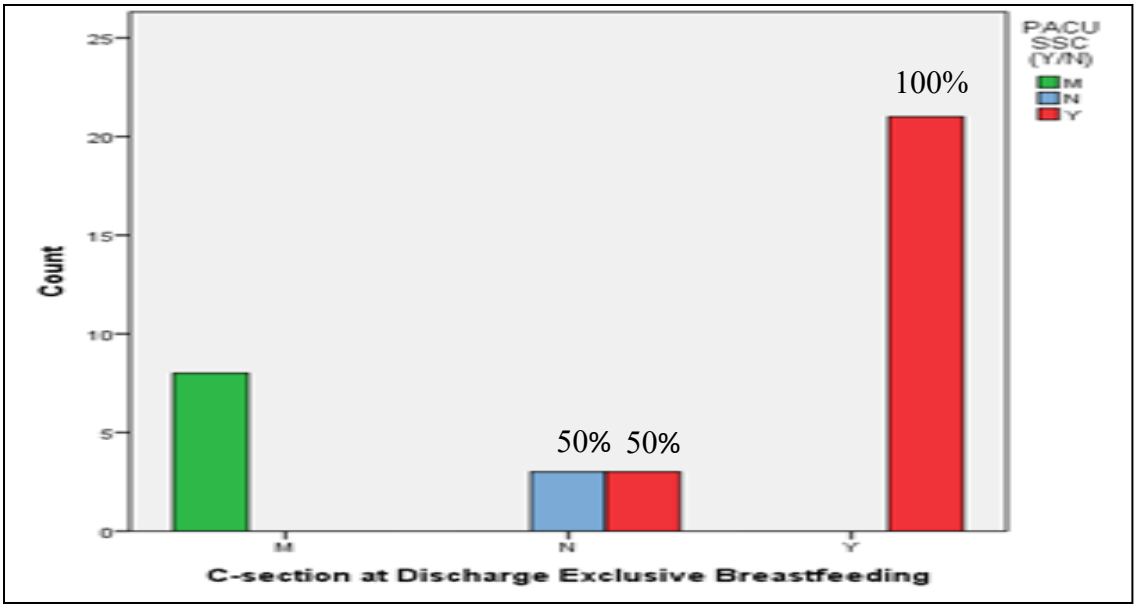

Figure 5. M=8 missing. Post intervention PACU (early) SSC related to discharge exclusivity.

***Paternal Newborn SSC Impact on PACU Breastfeeding Initiation*.** As shown in Figure 6, for newborns who did not have PNB-SSC (n=2, 33.3%) did not initiate PACU breastfeeding. Newborns who did have PNB-SSC (n=4, 66.7%) did not initiate PACU breastfeeding. Newborns who did not have PNB-SSC (n=5, 23.8%) did initiate PACU breastfeeding. Newborns who did experience PNB-SSC (n=16, 76.2%) did initiate breastfeeding in PACU. Results suggest a statistical association (p=0.00) between PNB-SSC and maternal breastfeeding initiation in PACU. This would indicate newborns who received paternal SSC are likely to initiate breastfeeding in L&D.

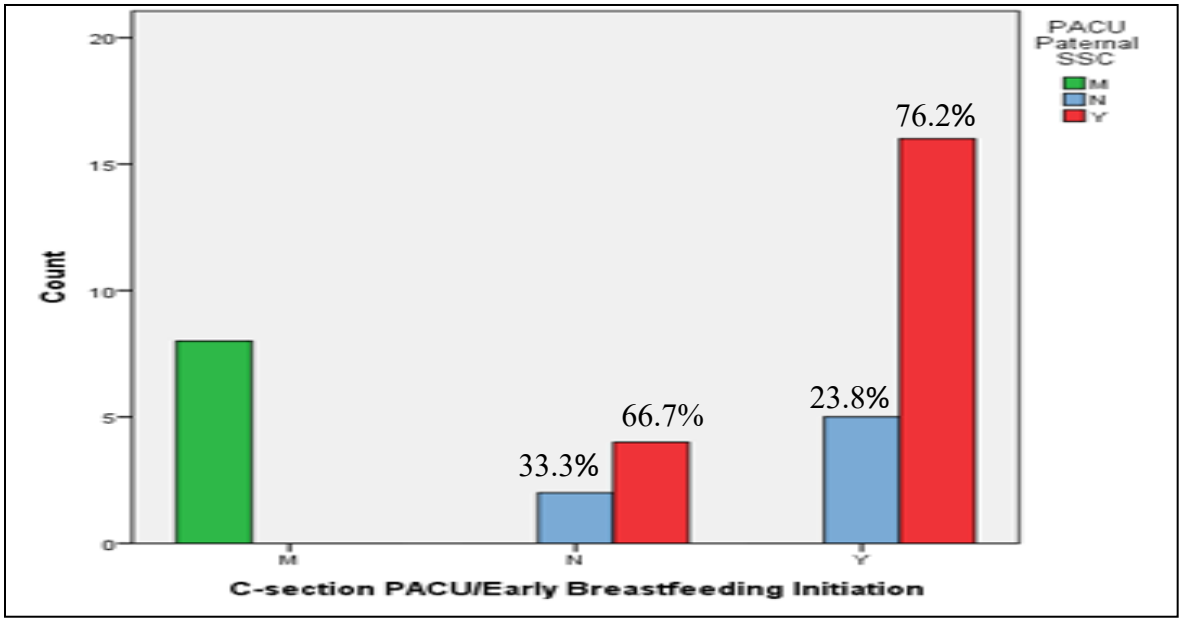

Figure 6. M=8 missing. Post intervention PACU paternal SSC – breastfeeding initiation.

Nursing Education and Clinical Practice Poster Survey Analysis. Descriptive statistics was used to measure nursing satisfaction of the SSC education and the paternal newborn SSC clinical practice poster reminder. Specific to the nursing education, forty-five nurses staff the three units; however, 31 (68%) participated in the SSC education and satisfaction survey. Eighteen nurses (58%) found the SSC education extremely helpful, ten (32%) found SSC education somewhat helpful and three (10%) found the SSC education not at all helpful (Appendix J). The paternal newborn SSC clinical practice poster reminder was beneficial in promoting PNB-SSC. Seventeen (54.8%) nurses found the clinical poster reminder to be extremely helpful, seven (22.6%) found it somewhat helpful; equally determined, seven (22.6%) nurses found it not at all helpful (Appendix K).

DISCUSSION

Summary

Adding to existing research, this project's pre intervention cross tabulation of study variables in between delivery methods has demonstrated that women who deliver by CS have a

higher probability to delay breastfeeding initiation in comparison to the vaginal delivery method and is less likely to EBF upon discharge. In addition, post SSC intervention analyses validate in uncomplicated CS deliveries there a statistical correlation that SSC can be impactful when performed early in the postnatal period to increase breastfeeding initiation and exclusivity at discharge. Pertinent to paternal SSC, analysis shows supporting evidence that when PNB-SSC is promoted in the absence of MNB-SSC, newborns initiate breastfeeding in PACU. Lastly, nurse education and clinical practice reminder to promote paternal SSC raised a greater understanding and awareness to PNB-SSC to positively impact successful breastfeeding outcome.

As reported by Huang, Chen, and Zhang (2019) SSC performed by the father indicates paternal support to breastfeeding promotes bonding, lowers paternal anxiety and depression while achieving better role attainment. Pisacane, Continisio, Aldinucci, D'Amora, and Continisio (2005) reported mothers who received support from their child's father had a higher exclusive breastfeeding prevalence rate of 25%, whereas the rate for mothers without paternal support was 15% therefore, concludes a father's involvement and preparedness are crucial predicators of infant breastfeeding. Based on the results of this scholarly project, the conclusion that paternal involvement is a predictor to successful breastfeeding, holds true. Additionally, this QI project stresses that the postnatal lactation process should not be confined to mother and baby. The intervention of reuniting the newborn with its parents in PACU encourages a co-parenting approach that offers a satisfying postnatal family experience and stimulates breastfeeding practice.

When knowledge deficits exist in maternity specialized nurses, EB breastfeeding practice and guidelines become stagnant, resulting in knowledge deprived nurses to deliver best practice standards of care. The collective data driven outcomes of this project should prompt nursing

administration to ensure continuous breastfeeding competencies among maternal care providers in order to meet the Healthy People 2010 targeted breastfeeding rates and that of the hospital's clinically desired exclusivity goals. Inclusive to the project results, nursing leadership is reminded that simple modifications to existing practices can improve nursing performance and the care of maternal and newborn patients.

As seen in the pre intervention statistical analyses, breastfeeding is highest in vaginal deliveries and SSC appears to promote breastfeeding initiation even among CS delivery method. Therefore, if the project setting truly desires to improve on breastfeeding exclusivity rates, measures for SSC in vaginal deliveries should continue, while actively promoting a cost-effective breastfeeding incentive in the caesarian delivered population to assist in meeting the recommended clinical breastfeeding exclusivity rate.

Limitations

There were several limitations to the project but not severely impactful. First, because of nursing staff constraints and workflow, some nurses were unable to participate in the education of SSC and the nurses who could, opted not to participate. Secondly, in collecting data from archival and current charts, accurate documentation could not be verified and often the pertinent information was missing. This resulted in alternatively logging in and out of the mother and newborn charts to confirm that the information was in fact missing; this was extremely time consuming. Third, although training was offered in a four-hour class on how to use the EMR, in the short project timeframe, the author had to become self-acclimated with the system, this too consumed a considerable amount of time during the data collection process. Lastly, cross validation of the hospitals data on SSC with that of this project would have been ideal to compare SSC activity overtime. However, the hospital did not have this information.

Sustainability and Recommendations

Sustainability and recommendations were guided by the WHO and UNICEF's BFHI, along with the statistical findings of this project. The outcome of the scholarly activity demonstrates there is a statistical implication that if maternal and/or paternal SSC is extensively promoted in CS deliveries, the hospital could draw closer to the recommended at discharge breastfeeding exclusivity rate. As a steppingstone, the project offers the hospital the opportunity to utilize and build on the data collection results from the interventions for continued improvement of maternity care. Project sustainability measures should be focused on (1) dedicated and consistent staff breastfeeding education and skills competency assessment; (2) policy and procedure revision for modification; (3) attentive evaluation of patient satisfaction questionnaire to postnatal care.

Staff education and competency play a has role to deliver best healthcare practice. Horntvedt, Nordsteien, Fermann, and Severinsson (2018) mentions despite teaching strategies to enhance evidence-based practice (EBP) knowledge and skills are recommended, and research indicates nurses may not be well prepared to apply EBP. The second step of the TSSB recommends that staff have enough knowledge, competence and skills to support breastfeeding (WHO, 2018). Extension to this project should include frequent and persistent breastfeeding in-services for all maternity care professionals to build on existing knowledge, incorporate skills training and workshops that assess breastfeeding competencies and correct inadequacies.

Lack of physician engagement and breastfeeding competency can negatively impact breastfeeding success. Wieczorek, Schmied, Dorner, and Dür (2015) cited a survey of pediatricians that showed many believe the benefits of breastfeeding do not outweigh the challenges that may be associated with it and reported various reasons to recommend against the

practice. This barrier of disengaged physicians, specifically among obstetricians, gynecologists and pediatricians can translate into stagnant efforts aimed at promoting breastfeeding. Therefore, nursing administrators of the Maternal Child Health department should push for breastfeeding training among maternity specialized physicians to abide by the same competency standards as other staff working in maternity care.

WHO explains for the health system to function effectively, standards and protocols that define high-quality maternal and newborn health care should be in place (WHO, 2004, p. 14). Project sustainability will require review of existing policies and develop new guidelines for better maternal and newborn care. At best, SSC in the OR would meet first-hour research proven practice. However, commitment to early SSC would be making strides at conforming to the BFHI recommendations. Standardizing into policy PACU SSC in uncomplicated CS will benefit the mother, father and newborn, with added hospital benefits of an increased at discharge BFER.

The National Family Planning & Reproductive Health Association (NFPRHA) reports in some instances, a small change to improve patient satisfaction can lead to a better patient experience overall (NFPRHA, n.d., p. 7). Higher patient satisfaction is likely to indicate better quality of care. Patient satisfaction of PACU SSC will likely excite continued efforts to sustain the practice of reuniting the newborn with its mother and/or father in PACU for early SSC and breastfeeding initiation.

Early initiation of breastfeeding is key to successful breastfeeding. However, meeting this goal in caesarian deliveries can be challenging but doable through cost-effective collaborative quality improvement initiatives. This project interventions were easily integrated within existing practice, without increasing staff workload and with minimal financial cost. Although project results demonstrated breastfeeding success over a short period of time, evaluation of

breastfeeding practices will have to continue and stagnant or decrease in BFERs will require a revisit into reasons that led to the drop and appropriate measures should be taken to remedy drawbacks.

Conclusions

Research concludes the caesarian delivery method typically reduces successful breastfeeding. SSC is a cost-effective and EB method that has been overwhelmingly documented to indicate its benefits in promoting breastfeeding. But the precipitous disconnect of the healthy maternal-newborn dyad for standard assessments, deprives the family unit of the recognized protective benefits of SSC. Under the routine practices of the hospital, immediate postnatal SSC was not a feasible option. However, implementing early postnatal maternal and/or paternal-newborn SSC in PACU was a better option and proved to be efficient in breastfeeding initiation and to increase the at discharge exclusivity rate.

To answer the project PICOT question: In newborns of cesarean deliveries, how effective is maternal and/or paternal skin-to-skin contact, compared to newborns with no skin-to-skin contact at increasing breastfeeding initiation and the at discharge exclusivity rate if performed early in the postnatal period? The data analyses of this project suggest compared to newborns who did not experience SSC to those who did, MNB-SSC and/or PNB-SSC is effective at initiating early postnatal breastfeeding and to maintain exclusivity at discharge among uncomplicated CS deliveries.

Through the lens of doctoral prepared nurses, more research is needed to reproduce this project and to test its generalizability, adding to current research on the proven benefits of SSC. Also, it is essential for maternal care leadership to prioritize training to better equip health care providers with knowledge to deliver best practice maternal and newborn care interventions.

Integrating EBP into existing practices can be a challenging task for healthcare organizations. However, through comprehensive education which combines theoretical knowledge with clinical application put together with interdisciplinary team collaboration, advanced practice prepared nurses can navigate these challenges with strong leadership aptitude into sustainable policies.

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APPENDICES

Appendix A

The Widström's Nine Newborn Instinctive Behavior Stages

Figure 7. Illustration of Widström's Nine Newborn Instinctive Behavior Stages. Healthy Children Project Inc. Used with permission.

Widström, A. M., Lilja, G., Aaltomaa-Michalias, P., Dahllöf, A., Lintula, M., & Nissen, E. (2011). Newborn behaviour to locate the breast when skin-to-skin: A possible method for enabling early self-regulation. *Acta paediatrica*, *100*(1), 79 – 85. doi: 10.1111/j.1651-2227.2010.01983.x.

Appendix B

DNP Project Timeline	
Month	**Activity**
January 2019 – March 2019	➢ Video conference with program director to review pre project activities and project proposal process, preceptor selection ➢ Introductory meeting with project setting's Maternal Child Health Services Director
April – June 2019	➢ Identification of key project stakeholders ➢ Narrowed down project topic of interest ➢ Comprehensive literature review of topic
July 2019	➢ Approval granted to begin clinical site organizational needs assessment ➢ Access to EMR granted with username and password ➢ Attended 3-hour EMR training from nursing informatics ➢ Developed chart review data collection tool, reviewed by unit manager before use
August – October 2019	➢ Began organizational needs assessment and pre intervention data collection ➢ Observation of five scheduled cesarean sections ➢ Submission of project proposal to University and project setting departmental leadership ➢ Proposal submission to IRB at Seton Hall University for review ➢ Design of materials needed for project intervention components (1) nursing education; (2) SSC clinical practice poster reminder; (3) guidelines to reuniting newborns with mother/father in PACU for early SSC; (4) nurse satisfaction surveys for project intervention
November 2019– February 2020	➢ Meet with program director for project progression update ➢ IRB project approval through Seton Hall University ➢ QI materials for each project intervention component shared with the department leadership/stakeholders before utilization ➢ Implementation of project intervention components ➢ Post intervention data collection on postnatal PACU SSC ➢ Data for post intervention chart review, pre and post intervention and surveys exported into Microsoft Excel spreadsheets for analyses
February 2020 – March 2020	➢ Evaluation of project intervention, presentation of project results, offer project sustainability and recommendations ➢ Project oral defense presentation

Appendix C

Pre and Post Intervention Chart Review Data Collection Tool

Chart Review Maternal & Newborn Data Collection Tool

Today's date_____ Patient Initial_____ Room_____

Delivery Date_____ Delivery Time_____

Maternal Information	Newborn Information
Age: Marital status: Gravity/Para:	Gender: Gestational age (weeks): Apgar score:
Mode of delivery *Vaginal delivery* (induced) (non-induced) (epidural) (vacuum assist) *C-section* (elective) (repeat)	Weight: Gram: Length:
Maternal Health hx:	
Blood type:	Blood type:
GBS: Treated:	
Rubella: Hep B: HIV: RPR: Gonorrhea: Chlamydia:	*Post-delivery complications:*
Post-delivery complications:	
Feeding preference Breast Bottle Both	Paternal support/involvement in L&D (Yes) (No)
Prenatal breastfeeding (BF) education (Yes) (No)	
Pre-delivery maternal anesthesia	
Type of anesthetic	*Other interventions:*
Time inserted	Time removed
After birth newborn interventions	
Skin-to-skin contact (SSC)	(Yes) (No)
If no SSC, reason?	
Time/Place 1st skin-to-skin	
Length of skin-to-skin	
Time Apgar assigned	
Maternal response to infant	
Time/place 1st introduced to breastfeeding	
If no early BF in L&D, reason?	
Time infant arrives to NBN	
Time RN newborn assessment	
Time PEDS exam	
Time Vitamin K injection	
Time eye prophylaxis	
Time 1st bath	
Time mother arrives to postpartum unit	
Time baby returns to mother	
Rooming-In	(Yes) (No)
At discharge BF status	
If not exclusive BF at discharge, reason?	

Prepared by Eunide Joseph, August 2019

Appendix D

S2S Info Graphic

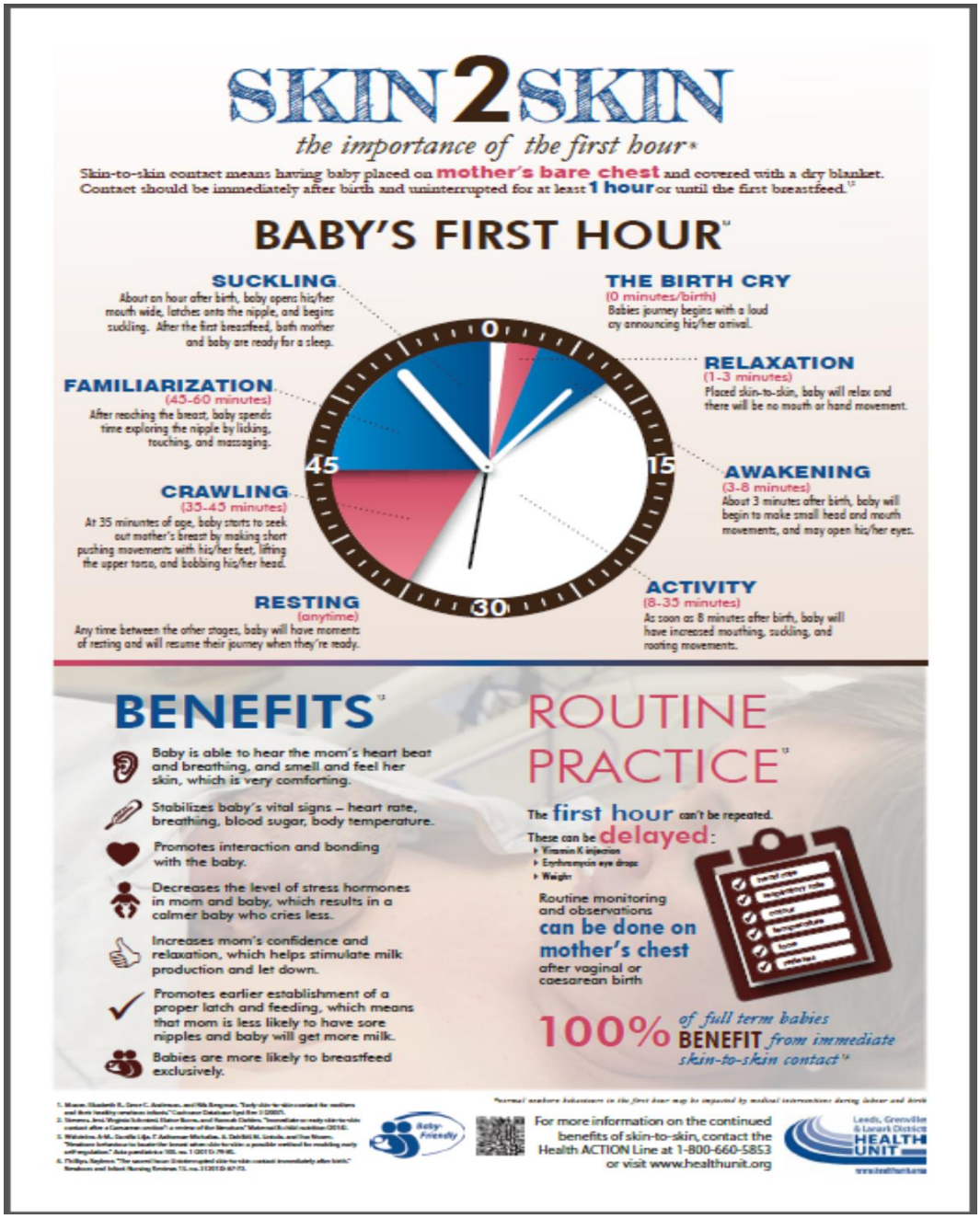

Figure 8. Nursing SSC education – 9 newborn pre-feeding behavioral stages.

Leeds, Grenville & Lanark District Health Unit. (2020). *Skin-to-Skin Infographic Frequently Asked Questions for Health Care Providers*. Retrieved from https://healthunit.org/health-information/babies-children/healthy-growth-development/skin-to-skin-infographic-hcp-faq/

Appendix E

Pre and Post Education Test

Doctor of Nursing Practice (DNP) Scholarly Project

Skin-to-Skin Contact Education for Maternal Child Health Nurses

Pre and Post Test

Instructions: Please answer the following questions as *true* or *false.* When completed, you may drop responses in locked drop box at the nursing workstation.

1. Skin-to-skin contact (SSC) is referred to the practice where the stable newborn is dried and laid directly on the mother and or father's bare chest after birth, both are covered in a warm blanket and left for at least an hour or until after the first breastfeed?
A. True B. False

2. SSC between a father and baby has no impact on the newborn's pre-feeding behaviors of seeking the maternal breast within the first hours of life?
A. True B. False

3. A potential long-term benefit of early postnatal newborn SSC is increased breastfeeding exclusivity rate at discharge?
A. True B. False

4. In the presence of newborn hypothermia (97.7°F/36.5°C), SSC will cause further decrease in the infant's core body temperature because the baby isn't properly dressed?
A. True B. False

5. SSC speeds up placental expulsion and lowers the risk of postpartum hemorrhage?
A. True B. False

6. In cesarean deliveries, SSC enables colonization of the baby's skin with the mother or father's friendly bacteria, thus, providing protection against infection?
A. True B. False

7. When given the opportunity to experience uninterrupted SSC, the newborn goes through 9 instinctive behavioral stages which leads to breast latch to feed?
A. True B. False

8. Paternal-newborn SSC offers the same benefits as maternal-newborn SSC and is a valuable alternative during the unavailability of mothers due to birthing complications, medical emergencies and practical barriers in caesarean sections?
A. True B. False

9. The 9 instinctive behavioral stages newborns experience when exposed to extended SSC are: (1) the birth cry (2) relaxation (3) awakening (4) activity (5) rest (6) crawling (7) familiarization (8) suckling (9) sleeping.
A. True B. False

10. SSC has no impact on postpartum depression or the mother's level of breastfeeding self-efficacy, satisfaction and confidence in the ability to breastfeed and care for her baby?
A. True B. False

Prepared by Eunide Joseph, information extracted from evidenced base data.

Appendix F

Paternal Newborn SSC Clinical Poster Reminder

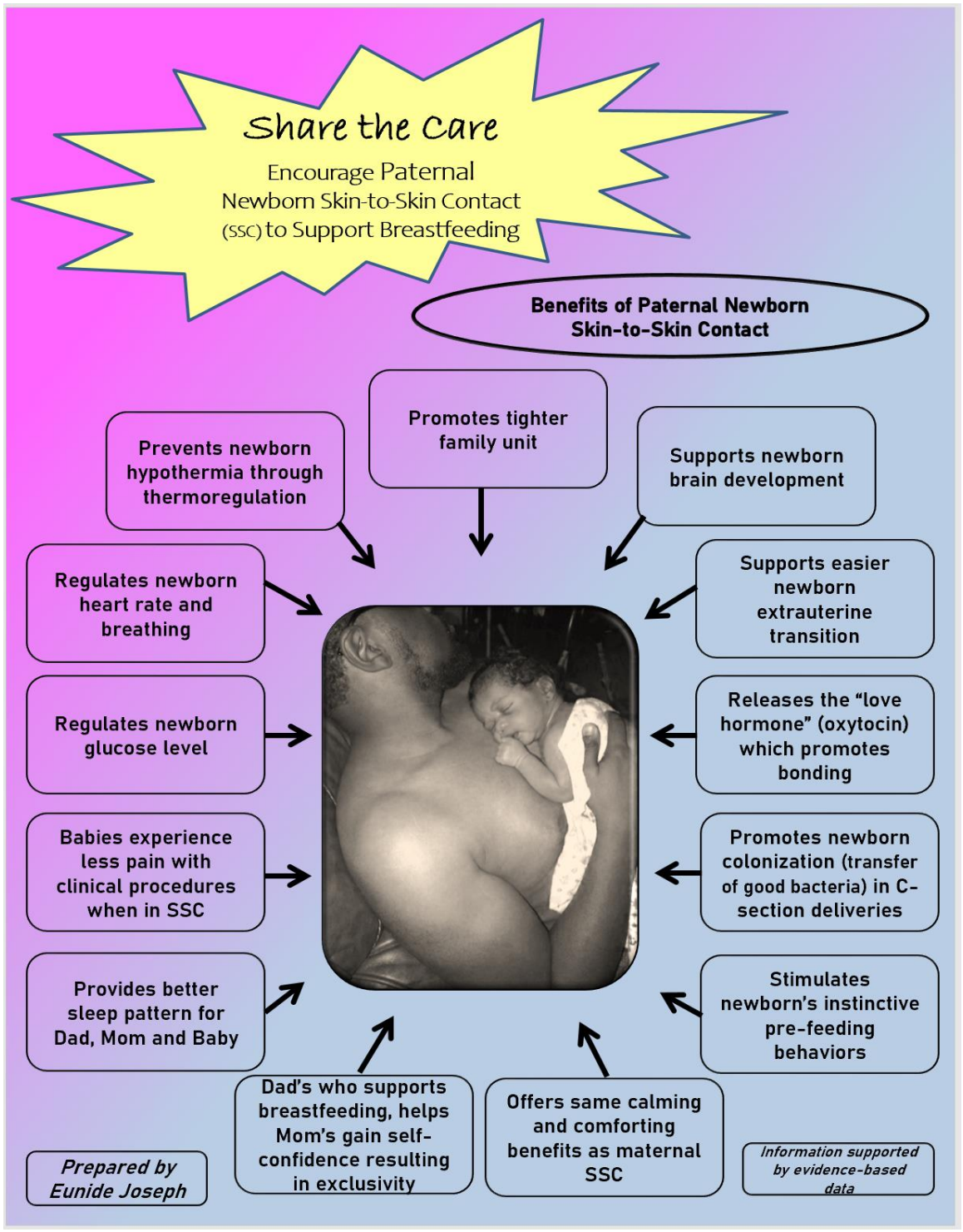

Figure 9. Paternal newborn SSC clinical practice poster reminder.

Appendix G

Nurses' Satisfaction Survey

Doctor of Nursing Practice (DNP) Scholarly Project

Promoting Newborn Skin-to-Skin Contact to Increase Breastfeeding Initiation and Exclusivity in Cesarean Deliveries

Nurses' Satisfaction Survey

SSC Nursing Education and Paternal Newborn SSC Clinical Practice Poster

To help evaluate project interventions, please take a moment to complete this two-question survey by selecting ***one*** of the following answers for each question:

1 *= Not at all helpful* ***2*** *= Somewhat helpful* ***3*** *= Extremely helpful*

1. How helpful was the nursing education to building a better understanding and awareness of skin-to-skin contact (SSC), its benefits, the significance of paternal newborn SSC and the *9 Instinctive Newborn Behavioral Stages* leading to breastfeeding?

   - O Not at all helpful
   - O Somewhat helpful
   - O Extremely helpful

2. How helpful was the paternal newborn clinical practice poster reminder in bringing awareness to encourage paternal SSC in the absence of maternal SSC?

   - O Not at all helpful
   - O Somewhat helpful
   - O Extremely helpful

Please drop survey in the designated lock box located at the nursing station.

Thank you for your participation.

Prepared by Eunide Joseph.

Notes. Evaluation of nurses' satisfaction to education and clinical practice poster interventions.

Appendix H

Pre-Education Test Result

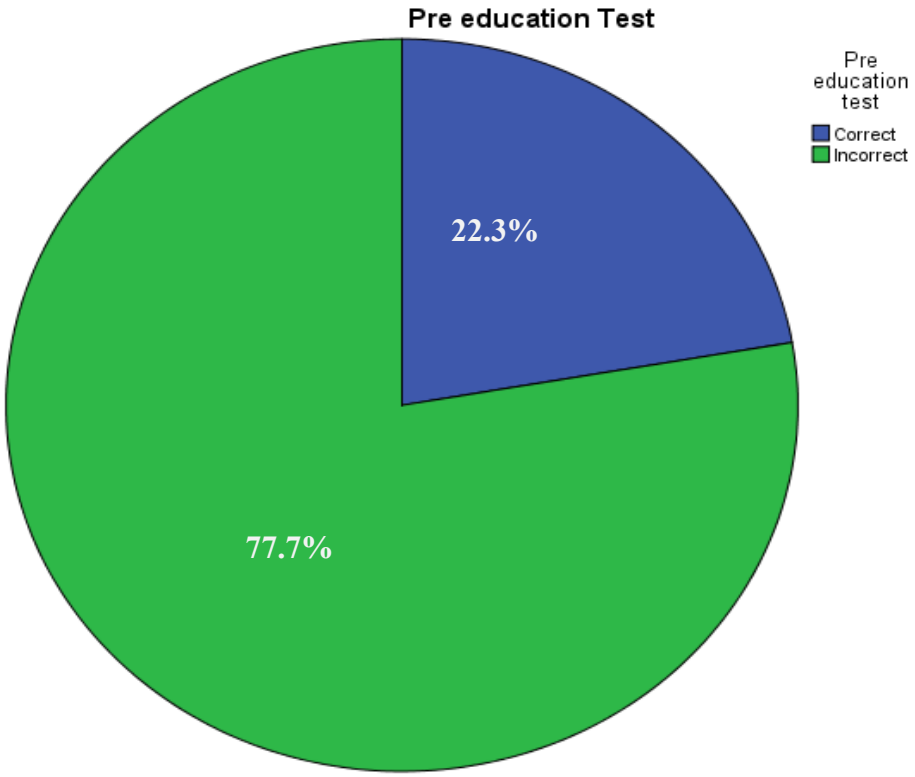

Figure 10. Pre education nurse knowledge (mean = 0.22, SD = 0.08).

Appendix I

Post Education Test Result

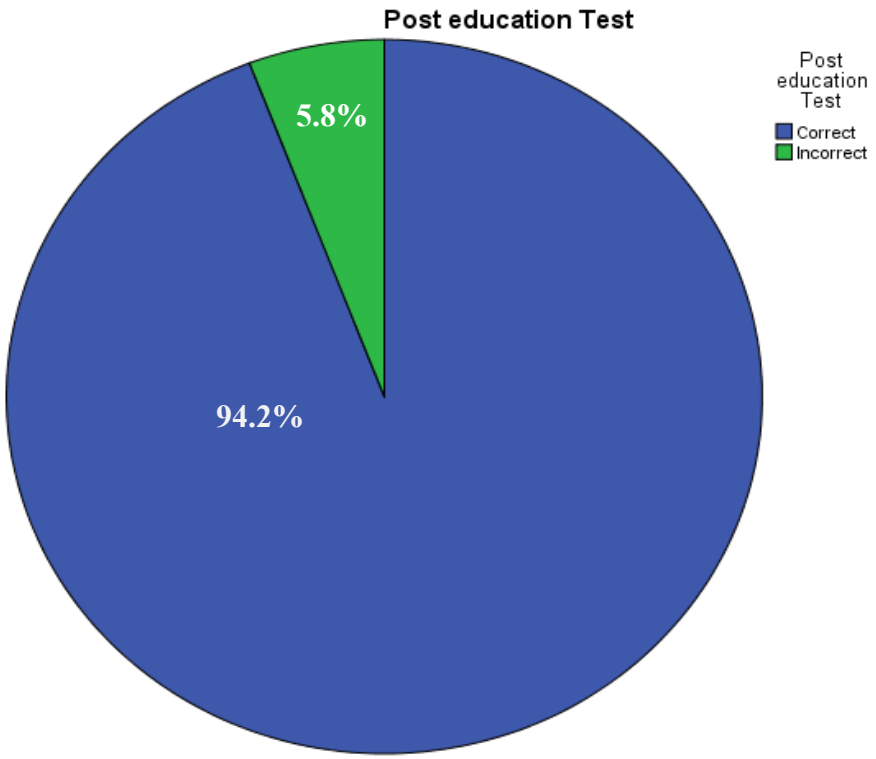

Figure 11. Post education nurse knowledge (mean = 0.94, SD = 0.60). Education significantly brings higher understanding on SSC to positively impact higher incidence of PACU SSC, breastfeeding initiation, and at discharge breastfeeding exclusivity status.

Appendix J

Education Nurse Satisfaction Survey Result

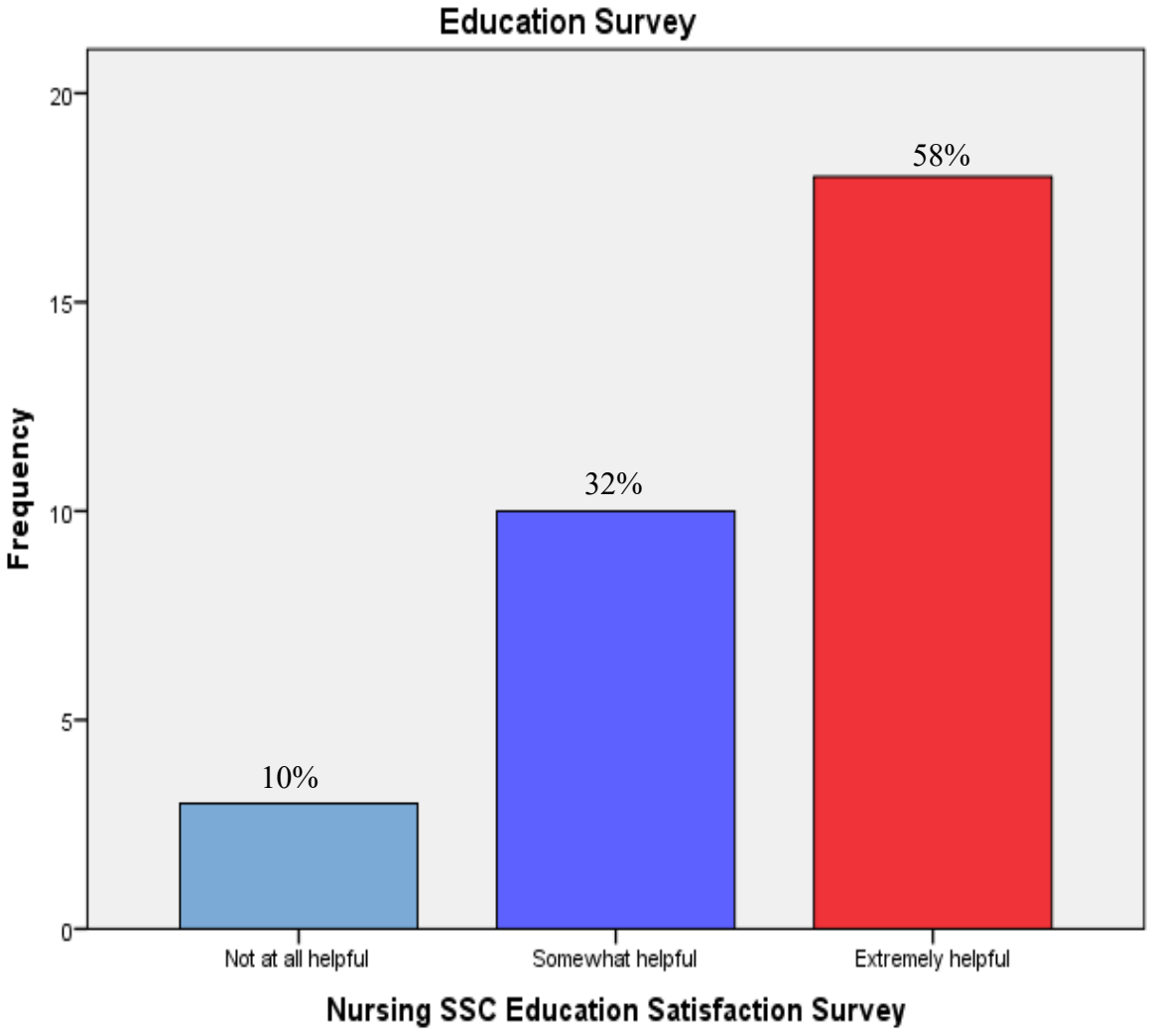

Figure 12. Nurses satisfaction to SSC education; mean 2.48 (SD = 0.67, range = 1-3).

Appendix K

Paternal Newborn SSC Clinical Practice Poster Nurse Satisfaction Survey Result

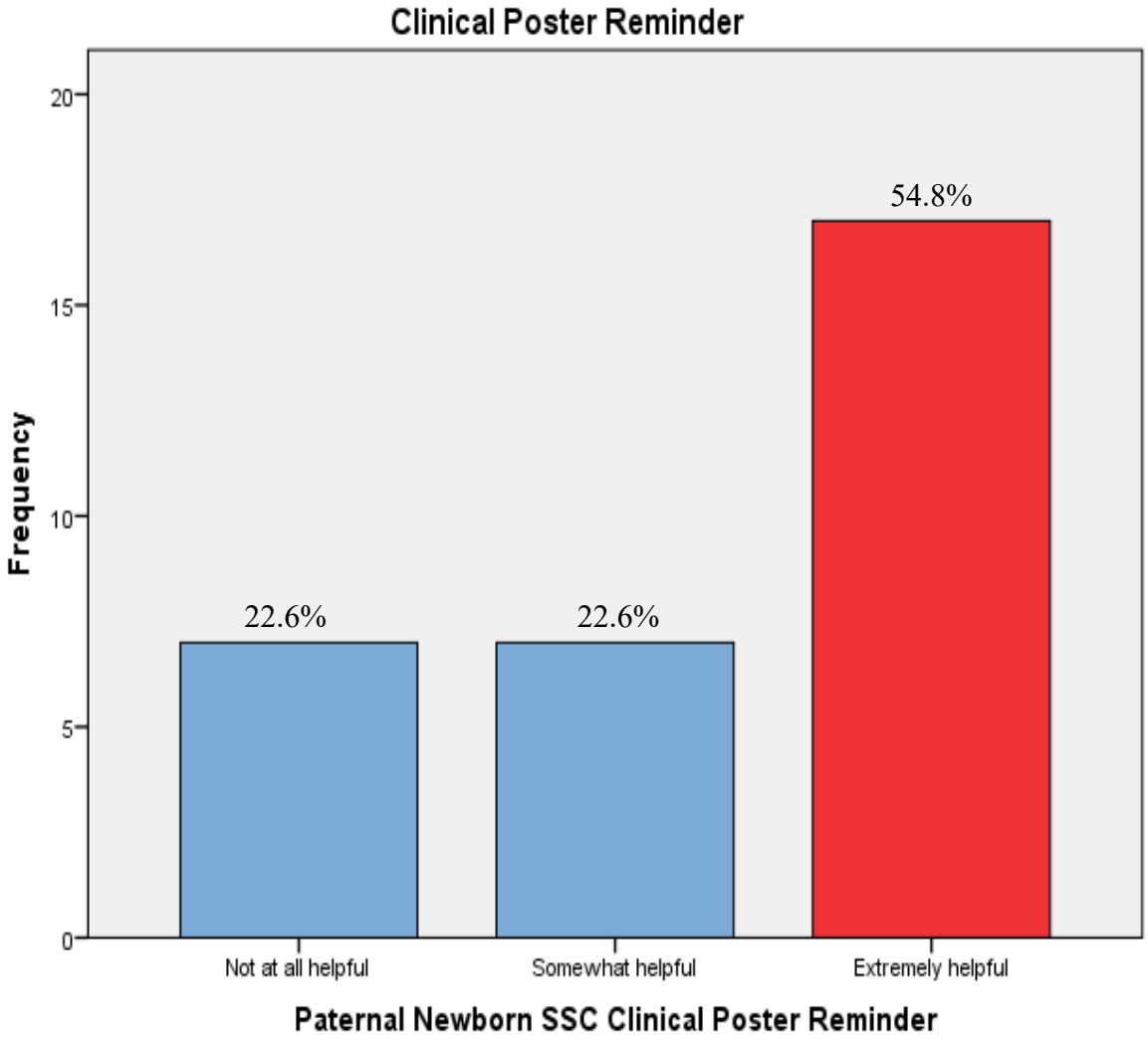

Figure 13. Nurse satisfaction to clinical practice poster reminder; mean of 2.32 (SD = 0.83, range = 1-3).